

# SAR TEST REPORT

No. I21Z62674-SEM01

For

**TCL Communication Ltd.**

**GSM/UMTS/LTE Mobile phone**

**Model Name: A509DL**

**with**

**Hardware Version: PIO**

**Software Version: vL7V**

**FCC ID: 2ACCJH131**

**Issued Date: 2022-2-15**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

**Test Laboratory:**

CTTL, Telecommunication Technology Labs, CAICT

No. 51, Xueyuan Road, Haidian District, Beijing, P. R. China 100191.

Tel:+86(0)10-62304633-2512, Fax:+86(0)10-62304633-2504

Email: [cttl\\_terminals@caict.ac.cn](mailto:cttl_terminals@caict.ac.cn), website: [www.caict.ac.cn](http://www.caict.ac.cn)



No.I21Z62674-SEM01

## **REPORT HISTORY**

| Report Number   | Revision | Issue Date | Description                     |
|-----------------|----------|------------|---------------------------------|
| I21Z62674-SEM01 | Rev.0    | 2022-2-15  | Initial creation of test report |

## TABLE OF CONTENT

|                                                                        |           |
|------------------------------------------------------------------------|-----------|
| <b>1 TEST LABORATORY .....</b>                                         | <b>5</b>  |
| 1.1 TESTING LOCATION .....                                             | 5         |
| 1.2 TESTING ENVIRONMENT.....                                           | 5         |
| 1.3 PROJECT DATA .....                                                 | 5         |
| 1.4 SIGNATURE.....                                                     | 5         |
| <b>2 STATEMENT OF COMPLIANCE .....</b>                                 | <b>6</b>  |
| <b>3 CLIENT INFORMATION .....</b>                                      | <b>8</b>  |
| 3.1 APPLICANT INFORMATION .....                                        | 8         |
| 3.2 MANUFACTURER INFORMATION .....                                     | 8         |
| <b>4 EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE) .....</b> | <b>9</b>  |
| 4.1 ABOUT EUT .....                                                    | 9         |
| 4.2 INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST .....          | 9         |
| 4.3 INTERNAL IDENTIFICATION OF AE USED DURING THE TEST .....           | 9         |
| <b>5 TEST METHODOLOGY .....</b>                                        | <b>10</b> |
| 5.1 APPLICABLE LIMIT REGULATIONS .....                                 | 10        |
| 5.2 APPLICABLE MEASUREMENT STANDARDS.....                              | 10        |
| <b>6 SPECIFIC ABSORPTION RATE (SAR).....</b>                           | <b>11</b> |
| 6.1 INTRODUCTION.....                                                  | 11        |
| 6.2 SAR DEFINITION .....                                               | 11        |
| <b>7 TISSUE SIMULATING LIQUIDS .....</b>                               | <b>12</b> |
| 7.1 TARGETS FOR TISSUE SIMULATING LIQUID .....                         | 12        |
| 7.2 DIELECTRIC PERFORMANCE .....                                       | 12        |
| <b>8 SYSTEM VERIFICATION .....</b>                                     | <b>16</b> |
| 8.1 SYSTEM SETUP.....                                                  | 16        |
| 8.2 SYSTEM VERIFICATION.....                                           | 17        |
| <b>9 GENERAL MEASUREMENT PROCEDURE .....</b>                           | <b>18</b> |
| 9.1 <i>POWER REFERENCE MEASUREMENT</i> .....                           | 18        |
| 9.2 <i>AREA SCAN</i> .....                                             | 18        |
| 9.3 <i>ZOOM SCAN</i> .....                                             | 19        |
| 9.4 <i>POWER DRIFT MEASUREMENT</i> .....                               | 19        |
| 9.5 <i>AREA SCAN BASED 1-G SAR</i> .....                               | 21        |
| <b>10 MEASUREMENT PROCEDURE FOR DIFFERENT TECHNOLOGIES .....</b>       | <b>22</b> |
| 10.1 GSM/GPRS MEASUREMENT PROCEDURES FOR SAR .....                     | 22        |
| 10.2 WCDMA MEASUREMENT PROCEDURES FOR SAR .....                        | 22        |
| 10.3 LTE MEASUREMENT PROCEDURES FOR SAR.....                           | 24        |
| 10.4 BLUETOOTH & WI-FI MEASUREMENT PROCEDURES FOR SAR .....            | 26        |
| <b>11 CONDUCTED OUTPUT POWER.....</b>                                  | <b>27</b> |
| 11.1 GSM MEASUREMENT RESULT .....                                      | 27        |
| 11.2 WCDMA MEASUREMENT RESULT.....                                     | 30        |
| 11.3 LTE MEASUREMENT RESULT .....                                      | 33        |

|                                                                                 |            |
|---------------------------------------------------------------------------------|------------|
| 11.4 Wi-Fi AND BT MEASUREMENT RESULT .....                                      | 72         |
| <b>12 ANTENNA LOCATION .....</b>                                                | <b>73</b>  |
| 12.1 TRANSMIT ANTENNA SEPARATION DISTANCES .....                                | 73         |
| 12.3 SAR MEASUREMENT POSITIONS .....                                            | 74         |
| 12.4 STANDALONE SAR TEST EXCLUSION CONSIDERATIONS .....                         | 74         |
| <b>13 SAR TEST RESULT .....</b>                                                 | <b>75</b>  |
| 13.1 SAR RESULTS.....                                                           | 78         |
| 13.2 SAR RESULTS FOR PHABLET .....                                              | 84         |
| <b>14 SAR MEASUREMENT VARIABILITY.....</b>                                      | <b>85</b>  |
| <b>15 EVALUATION OF SIMULTANEOUS.....</b>                                       | <b>86</b>  |
| 15.1 INTRODUCTION.....                                                          | 86         |
| 15.2 SIMULTANEOUS TRANSMISSION CAPABILITIES .....                               | 87         |
| 15.3 SAR SIMULTANEOUS TRANSMISSION ANALYSIS .....                               | 87         |
| 15.4 CONCLUSION .....                                                           | 87         |
| <b>16 MEASUREMENT UNCERTAINTY .....</b>                                         | <b>88</b>  |
| <b>17 MAIN TEST INSTRUMENTS.....</b>                                            | <b>89</b>  |
| <b>ANNEX A GRAPH RESULTS.....</b>                                               | <b>90</b>  |
| <b>ANNEX B SYSTEM VERIFICATION RESULTS .....</b>                                | <b>127</b> |
| <b>ANNEX C SAR MEASUREMENT SETUP .....</b>                                      | <b>136</b> |
| <b>ANNEX D POSITION OF THE WIRELESS DEVICE IN RELATION TO THE PHANTOM .....</b> | <b>142</b> |
| <b>ANNEX E EQUIVALENT MEDIA RECIPES .....</b>                                   | <b>145</b> |
| <b>ANNEX F SYSTEM VALIDATION .....</b>                                          | <b>146</b> |
| <b>ANNEX G PROBE CALIBRATION CERTIFICATE.....</b>                               | <b>148</b> |
| PROBE 7517 CALIBRATION CERTIFICATE.....                                         | 148        |
| PROBE 7600 CALIBRATION CERTIFICATE.....                                         | 157        |
| <b>ANNEX H DIPOLE CALIBRATION CERTIFICATE .....</b>                             | <b>166</b> |
| <b>ANNEX I ACCREDITATION CERTIFICATE.....</b>                                   | <b>202</b> |

## 1 Test Laboratory

### 1.1 Testing Location

|               |                                                                                               |
|---------------|-----------------------------------------------------------------------------------------------|
| Company Name: | CTTL(Shouxiang)                                                                               |
| Address:      | No. 51 Shouxiang Science Building, Xueyuan Road, Haidian District, Beijing, P. R. China100191 |

### 1.2 Testing Environment

|                             |                |
|-----------------------------|----------------|
| Temperature:                | 18°C~25°C,     |
| Relative humidity:          | 30%~ 70%       |
| Ground system resistance:   | < 0.5 $\Omega$ |
| Ambient noise & Reflection: | < 0.012 W/kg   |

### 1.3 Project Data

|                     |                  |
|---------------------|------------------|
| Project Leader:     | Qi Dianyuan      |
| Test Engineer:      | Lin Xiaojun      |
| Testing Start Date: | January 7, 2021  |
| Testing End Date:   | January 22, 2021 |

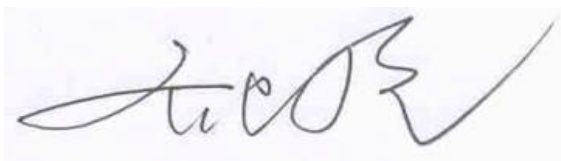
### 1.4 Signature



---

Lin Xiaojun

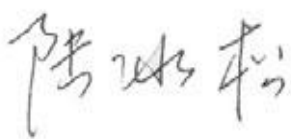
(Prepared this test report)



---

Qi Dianyuan

(Reviewed this test report)



---

Lu Bingsong

Deputy Director of the laboratory  
(Approved this test report)

## 2 Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for TCL Communication Ltd. GSM/UMTS/LTE Mobile phone A509DL are as follows:

**Table 2.1: Highest Reported SAR -Standalone(1g)**

| Mode         |                 | Highest Reported SAR (1g) |                     |                       |                               |
|--------------|-----------------|---------------------------|---------------------|-----------------------|-------------------------------|
|              |                 | 1g SAR Head               | 1g SAR Hotspot 10mm | 1g SAR Body-worn 15mm | Product Specific 10-g SAR 0mm |
| GSM          | GSM 850         | 0.26                      | 0.33                | 0.33                  | /                             |
|              | PCS 1900        | 0.17                      | 0.42                | 0.50                  | /                             |
| WCDMA        | UMTS FDD 2      | 0.36                      | 0.66                | 0.46                  | /                             |
|              | UMTS FDD 4      | 0.60                      | 0.75                | 0.56                  | /                             |
|              | UMTS FDD 5      | 0.31                      | 0.45                | 0.45                  | /                             |
| LTE          | LTE Band 12     | 0.20                      | 0.42                | 0.42                  | /                             |
|              | LTE Band 13     | 0.27                      | 0.41                | 0.41                  | /                             |
|              | LTE Band 25     | 0.27                      | 0.49                | 0.40                  | /                             |
|              | LTE Band 26     | 0.29                      | 0.38                | 0.38                  | /                             |
|              | LTE Band 41 PC3 | 0.16                      | 0.57                | 0.47                  | /                             |
|              | LTE Band 41 PC2 | 0.29                      | 0.73                | 0.52                  | /                             |
|              | LTE Band 66     | 0.53                      | 0.85                | 0.60                  | 1.22                          |
|              | LTE Band 71     | 0.11                      | 0.40                | 0.40                  | /                             |
| WLAN 2.4 GHz |                 | 0.27                      | 0.35                | 0.35                  | 0.63                          |
| BT           |                 | 0.05                      | 0.01                | 0.01                  | 0.05                          |

**Note:** The device have similar frequency in some LTE bands : LTEB2/25, 4/66, 5/26, since the supported frequency spans for the smaller LTE bands are completely cover by the larger LTE bands and the channel bandwidth and other operating parameters for the smaller band be fully supported by the larger band, therefore, only larger LTE bands were required to be tested for SAR.

The SAR values found for the Mobile Phone are below the maximum recommended levels of 1.6 W/kg as averaged over any 1g tissue according to the ANSI C95.1-1992.

For body operation, this device has been tested and meets FCC RF exposure guidelines when used with any accessory that contains no metal and which provides a minimum separation distance of 10 mm for hotspot and 15mm for body worn between this device and the body of the user. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output.

The measurement together with the test system set-up is described in annex C. A detailed description of the equipment under test can be found in chapter 4 of this test report. The highest reported SAR value is obtained at the case of **(Table 2.1)**, and the values are: **0.85 W/kg(1g)**.

**Table 2.2: The sum of reported SAR values for Main antenna and WiFi-2.45G**

|                                            | Position                      | Cellular antenna | WiFi | Sum         |
|--------------------------------------------|-------------------------------|------------------|------|-------------|
| <b>Highest reported SAR value for Head</b> | Right hand, Cheek (WCDMA1700) | 0.60             | 0.25 | <b>0.85</b> |
| <b>Maximum reported SAR value for Body</b> | Rear 10mm (LTE Band66)        | 0.85             | 0.35 | <b>1.20</b> |

Note1: we have evaluated and chose the highest value of body 10mm and 15mm in the above table.

**Table 2.3: The sum of reported SAR values for Main antenna and +BT**

|                                            | Band                          | Cellular antenna | BT          | Sum         |
|--------------------------------------------|-------------------------------|------------------|-------------|-------------|
| <b>Highest reported SAR value for Head</b> | Right hand, Cheek (WCDMA1700) | 0.60             | <b>0.05</b> | <b>0.65</b> |
| <b>Maximum reported SAR value for Body</b> | Rear 10mm (LTE Band66)        | 0.85             | 0.01        | <b>0.86</b> |

Note1: we have evaluated and chose the highest value of body 10mm and 15mm in the above table.

According to the above tables, the highest sum of reported SAR values is **1.20 W/kg (1g)**. The detail for simultaneous transmission consideration is described in chapter 15.

### 3 Client Information

#### 3.1 Applicant Information

|                 |                                                                                               |
|-----------------|-----------------------------------------------------------------------------------------------|
| Company Name:   | TCL Communication Ltd.                                                                        |
| Address/Post:   | 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong |
| Contact Person: | peter.yang                                                                                    |
| E-mail:         | peter.yang@tcl.com                                                                            |
| Telephone:      | 0086-755-36645759                                                                             |
| Fax:            | 0086-755-36612000-81722                                                                       |

#### 3.2 Manufacturer Information

|                 |                                                                                               |
|-----------------|-----------------------------------------------------------------------------------------------|
| Company Name:   | TCL Communication Ltd.                                                                        |
| Address/Post:   | 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong |
| Contact Person: | peter.yang                                                                                    |
| E-mail:         | peter.yang@tcl.com                                                                            |
| Telephone:      | 0086-755-36645759                                                                             |
| Fax:            | 0086-755-36612000-81722                                                                       |

## 4 Equipment Under Test (EUT) and Ancillary Equipment (AE)

### 4.1 About EUT

|                                     |                                                                                                   |
|-------------------------------------|---------------------------------------------------------------------------------------------------|
| Description:                        | GSM/UMTS/LTE Mobile phone                                                                         |
| Model name:                         | A509DL                                                                                            |
| Operating mode(s):                  | GSM 850/900/1800/1900, WCDMA850/1700/1900, BT, Wi-Fi(2.4G)<br>LTE Band 2/4/5/12/13/25/26/41/66/71 |
| Tested Tx Frequency:                | 824 – 849 MHz (GSM 850)                                                                           |
|                                     | 1850 – 1910 MHz (GSM 1900)                                                                        |
|                                     | 824–849 MHz (WCDMA 850 Band V)                                                                    |
|                                     | 1710 – 1755 MHz (WCDMA 1700 Band IV)                                                              |
|                                     | 1850–1910 MHz (WCDMA1900 Band II)                                                                 |
|                                     | 699.7 – 711 MHz(LTE Band 12)                                                                      |
|                                     | 779.5 – 782 MHz(LTE Band 13)                                                                      |
|                                     | 1850.7–1905 MHz(LTE Band 25)                                                                      |
|                                     | 814.7 – 841.5 MHz(LTE Band 26)                                                                    |
|                                     | 2498.5 –2680 MHz (LTE Band 41)                                                                    |
|                                     | 1710.7 – 1770MHz(LTE Band66)                                                                      |
|                                     | 665.5 – 688MHz(LTE Band71)                                                                        |
|                                     | 2412 – 2462 MHz (Wi-Fi 2.4G)                                                                      |
| GPRS/EGPRS Multislot Class:         | 12                                                                                                |
| GPRS capability Class:              | B                                                                                                 |
| Test device Production information: | Production unit                                                                                   |
| Device type:                        | Portable device                                                                                   |
| Antenna type:                       | Integrated antenna                                                                                |
| Hotspot mode:                       | Support                                                                                           |

### 4.2 Internal Identification of EUT used during the test

| EUT ID* | IMEI/SN         | HW  | SW Version |
|---------|-----------------|-----|------------|
| EUT1    | 015858000011803 | PIO | vL7V       |
| EUT2    | 015858000011670 | PIO | vL7V       |
| EUT3    | 015858000011829 | PIO | vL7V       |
| EUT4    | 015858000011662 | PIO | vL7V       |
| EUT5    | 015858000011696 | PIO | vL7V       |

\*EUT ID: is used to identify the test sample in the lab internally.

**Note:** It is performed to test SAR with the EUT1&2 and conducted power with the EUT3&4.

### 4.3 Internal Identification of AE used during the test

| AE ID* | Description | Model        | SN | Manufacturer |
|--------|-------------|--------------|----|--------------|
| AE1    | Battery     | CAB2880000C7 | /  | VEKEN        |
| AE2    | Battery     | CAB2880001C1 | /  | BYD          |

\*AE ID: is used to identify the test sample in the lab internally.

## 5 TEST METHODOLOGY

### 5.1 Applicable Limit Regulations

**ANSI C95.1–1992:** IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

It specifies the maximum exposure limit of **1.6 W/kg** as averaged over any 1 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

### 5.2 Applicable Measurement Standards

**IEEE 1528–2013:** Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.

**KDB447498 D01: General RF Exposure Guidance v06:** Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

**KDB648474 D04 Handset SAR v01r03:** SAR Evaluation Considerations for Wireless Handsets.

**KDB941225 D01 SAR test for 3G devices v03r01:** SAR Measurement Procedures for 3G Devices

**KDB941225 D05 SAR for LTE Devices v02r05:** SAR Evaluation Considerations for LTE Devices

**KDB941225 D06 Hotspot Mode SAR v02r01:** SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities

**KDB248227 D01 802.11 Wi-Fi SAR v02r02:** SAR GUIDANCE FOR IEEE 802.11 (Wi-Fi) TRANSMITTERS

**KDB865664 D01 SAR measurement 100 MHz to 6 GHz v01r04:** SAR Measurement Requirements for 100 MHz to 6 GHz.

**KDB865664 D02 RF Exposure Reporting v01r02:** RF Exposure Compliance Reporting and Documentation Considerations

## 6 Specific Absorption Rate (SAR)

### 6.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

### 6.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy ( $dW$ ) absorbed by (dissipated in) an incremental mass ( $dm$ ) contained in a volume element ( $dv$ ) of a given density ( $\rho$ ). The equation description is as below:

$$SAR = \frac{d}{dt} \left( \frac{dW}{dm} \right) = \frac{d}{dt} \left( \frac{dW}{\rho dv} \right)$$

SAR is expressed in units of Watts per kilogram (W/kg)

SAR measurement can be either related to the temperature elevation in tissue by

$$SAR = c \left( \frac{\delta T}{\delta t} \right)$$

Where:  $C$  is the specific heat capacity,  $\delta T$  is the temperature rise and  $\delta t$  is the exposure duration, or related to the electrical field in the tissue by

$$SAR = \frac{\sigma |E|^2}{\rho}$$

Where:  $\sigma$  is the conductivity of the tissue,  $\rho$  is the mass density of tissue and  $E$  is the RMS electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

## 7 Tissue Simulating Liquids

The temperature of the tissue-equivalent medium used during measurement must also be within 18 °C to 25 °C and within  $\pm 2$  °C of the temperature when the tissue parameters are characterized. The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 3 – 4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series.

The dielectric constant ( $\epsilon_r$ ) and conductivity ( $\sigma$ ) of typical tissue-equivalent media recipes are expected to be within  $\pm 5\%$  of the required target values; but for SAR measurement systems that have implemented the SAR error compensation algorithms documented in IEEE Std 1528-2013, to automatically compensate the measured SAR results for deviations between the measured and required tissue dielectric parameters, the tolerance for  $\epsilon_r$  and  $\sigma$  may be relaxed to  $\pm 10\%$ . This is limited to frequencies  $\leq 3$  GHz.

### 7.1 Targets for tissue simulating liquid

**Table 7.1: Targets for tissue simulating liquid**

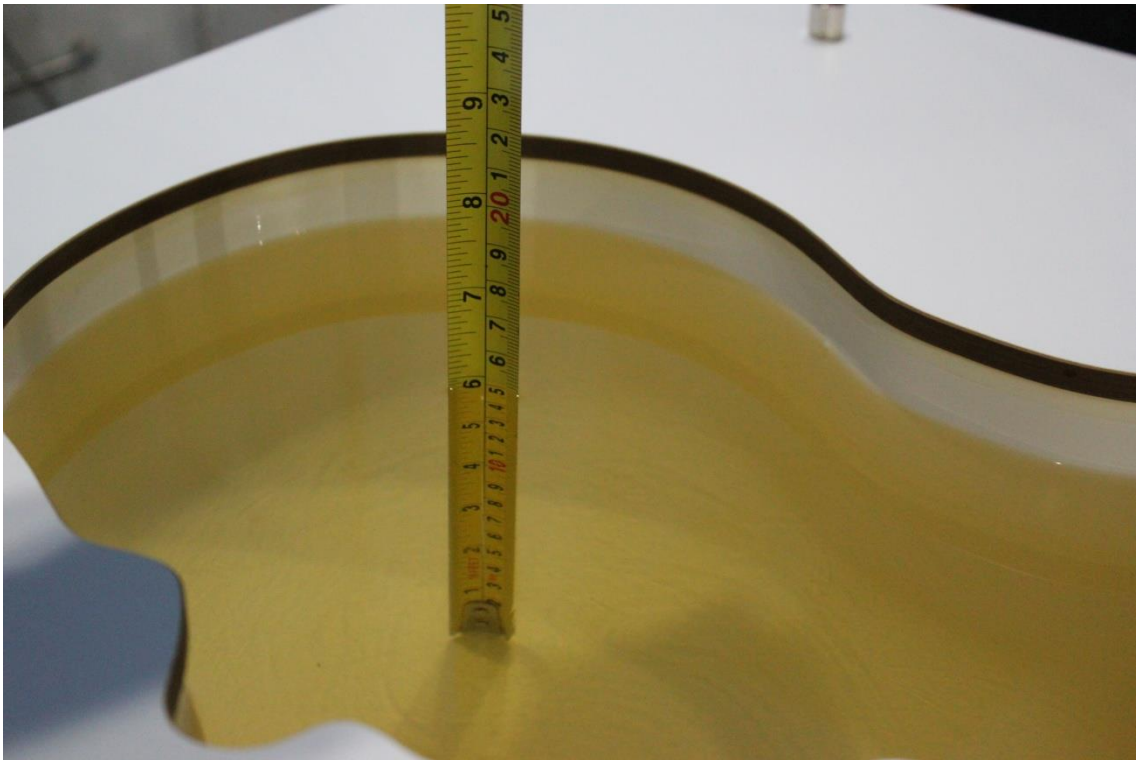
| Frequency(MHz) | Liquid Type | Conductivity( $\sigma$ ) | $\pm 10\%$ Range | Permittivity( $\epsilon$ ) | $\pm 10\%$ Range |
|----------------|-------------|--------------------------|------------------|----------------------------|------------------|
| 750            | Head        | 0.89                     | 0.80~0.98        | 41.94                      | 37.75~46.13      |
| 835            | Head        | 0.90                     | 0.81~0.99        | 41.5                       | 37.35~45.65      |
| 1750           | Head        | 1.40                     | 1.26~1.54        | 40.0                       | 36~44            |
| 1900           | Head        | 1.40                     | 1.26~1.54        | 40.0                       | 36~44            |
| 2450           | Head        | 1.80                     | 1.62~1.98        | 39.2                       | 35.28~43.12      |
| 2600           | Head        | 1.96                     | 1.76~2.16        | 39.01                      | 35.11~42.91      |

### 7.2 Dielectric Performance

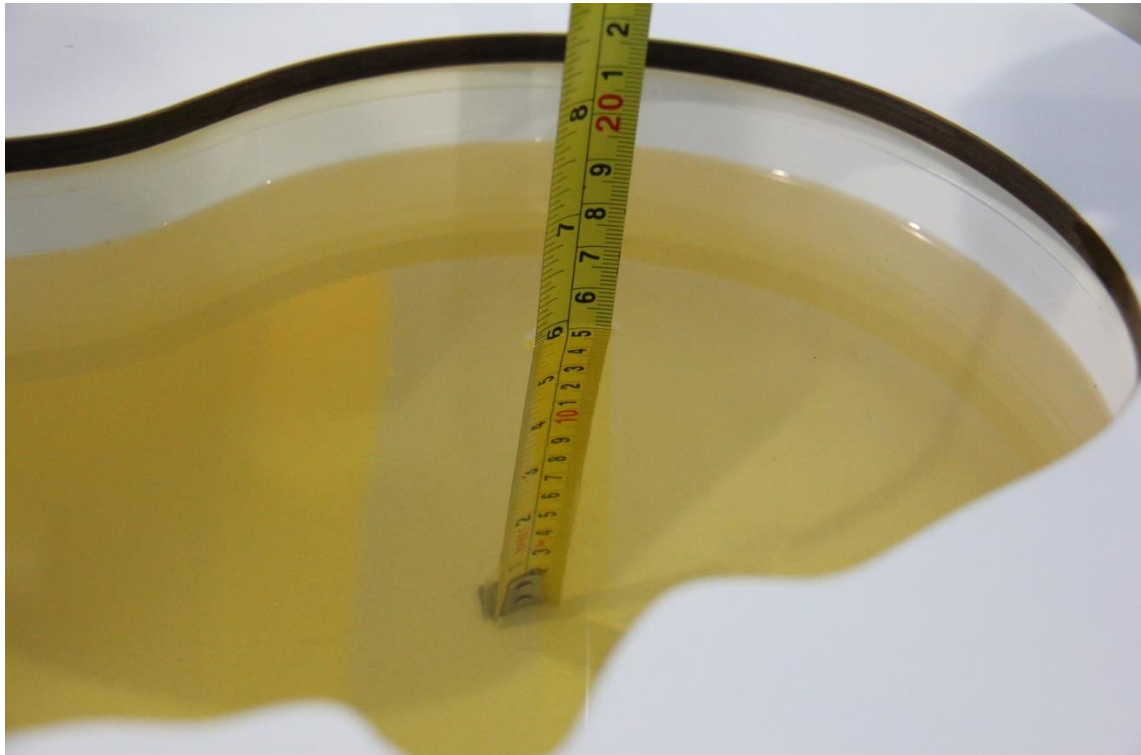
**Table 7.2: Dielectric Performance of Tissue Simulating Liquid**

| Measurement Date<br>yyyy/mm/dd | Frequency | Type | Permittivity<br>$\epsilon$ | Drift<br>(%) | Conductivity<br>$\sigma$ (S/m) | Drift<br>(%) |
|--------------------------------|-----------|------|----------------------------|--------------|--------------------------------|--------------|
| 2022/1/7                       | 750MHz    | Head | 44.323                     | 5.68         | 0.838                          | -5.84        |
| 2022/1/16                      | 750MHz    | Head | 45.057                     | 7.43         | 0.835                          | -6.18        |
| 2022/1/14                      | 835 MHz   | Head | 45.109                     | 8.70         | 0.854                          | -5.11        |
| 2022/1/20                      | 835 MHz   | Head | 44.11                      | 6.29         | 0.862                          | -4.22        |
| 2022/1/15                      | 1750MHz   | Head | 42.7                       | 6.54         | 1.38                           | 0.73         |
| 2022/1/18                      | 1900 MHz  | Head | 42.465                     | 6.16         | 1.463                          | 4.50         |
| 2022/1/22                      | 2450 MHz  | Head | 40.99                      | 4.57         | 1.895                          | 5.28         |
| 2022/1/13                      | 2600 MHz  | Head | 40.998                     | 5.10         | 2.057                          | 4.95         |

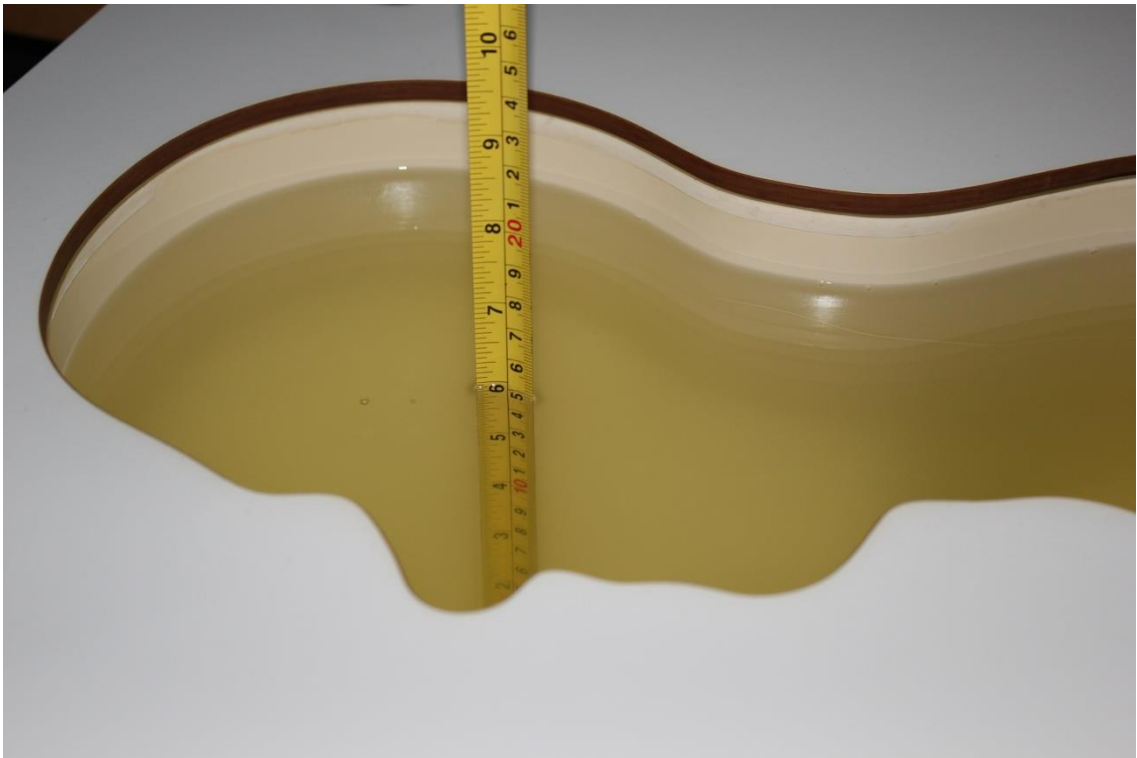
Note: The liquid temperature is (22.0 -23.0)°C



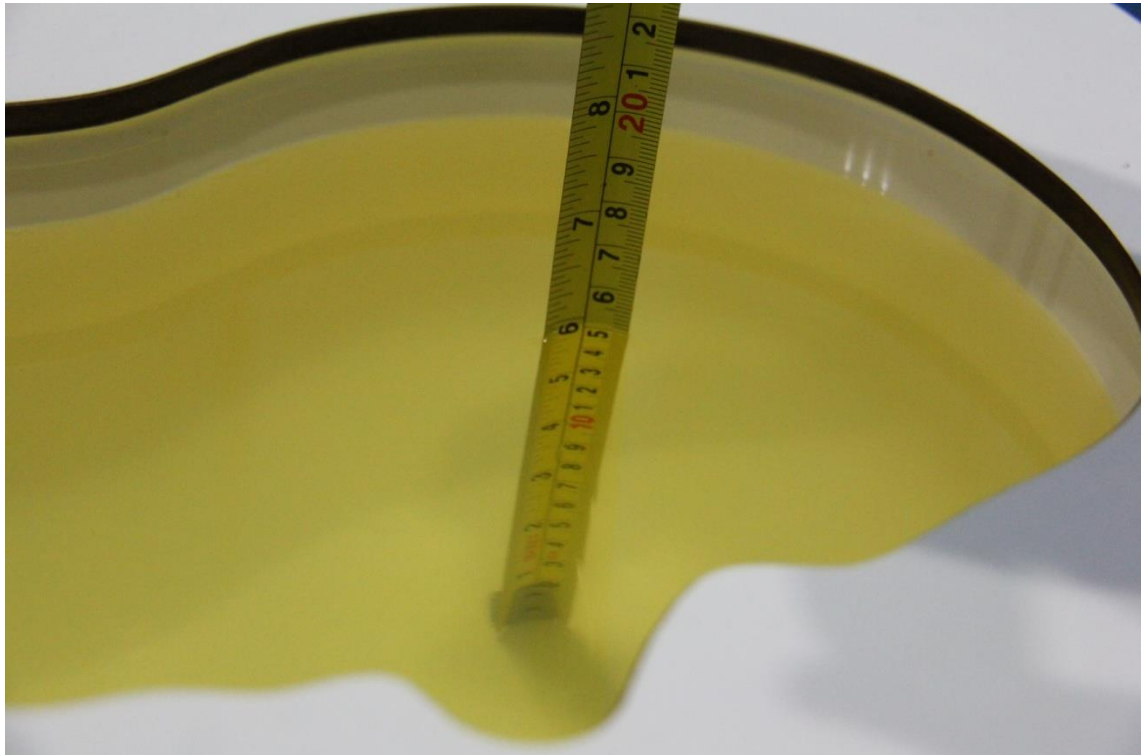
Picture 7-1 Liquid depth in the Head Phantom (750MHz)



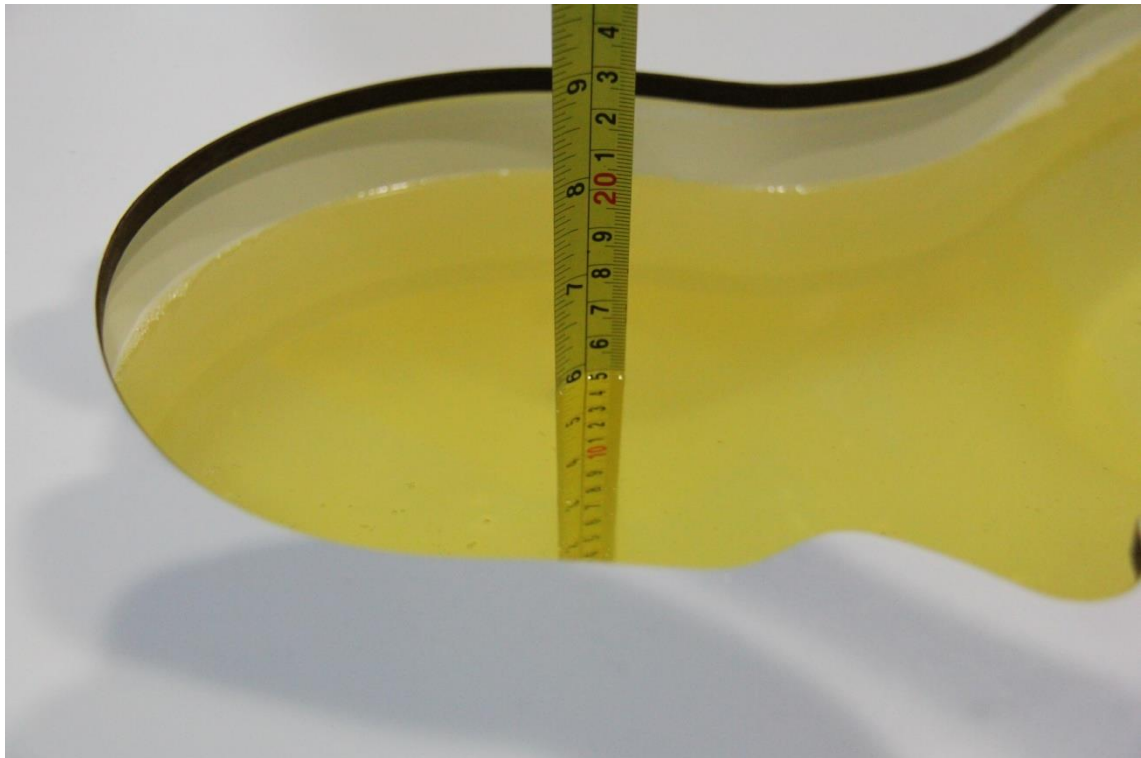
Picture 7-2 Liquid depth in the Head Phantom (835 MHz)



**Picture 7-3 Liquid depth in the Head Phantom (1750 MHz)**



**Picture 7-4 Liquid depth in the Head Phantom (1900 MHz)**



**Picture 7-5 Liquid depth in the Head Phantom (2450MHz)**

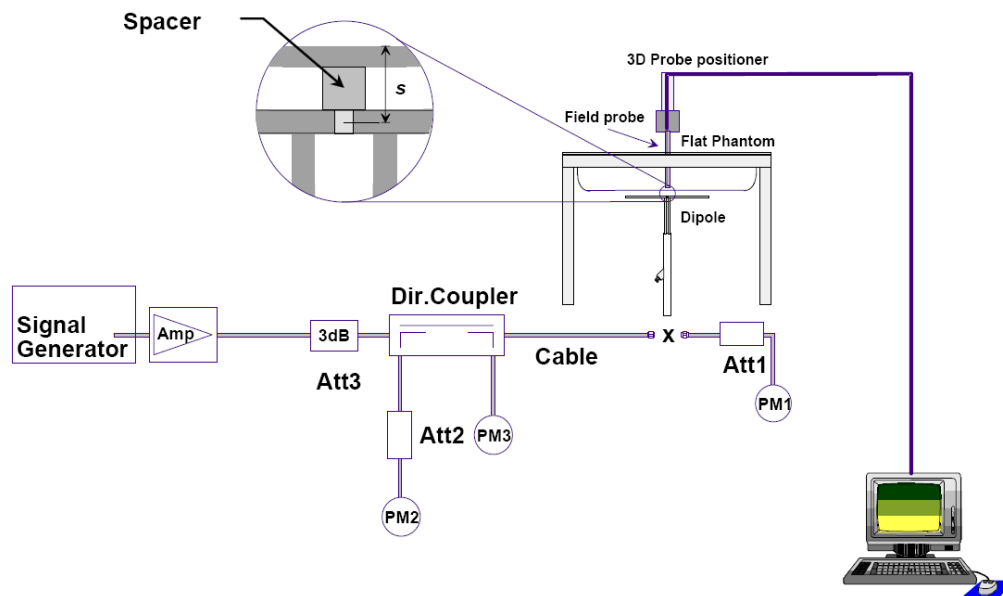


**Picture 7-6 Liquid depth in the Head Phantom (2600 MHz)**

## 8 System verification

### 8.1 System Setup

In the simplified setup for system evaluation, the DUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The equipment setup is shown below:



Picture 8.1 System Setup for System Evaluation



Picture 8.2 Photo of Dipole Setup

## 8.2 System Verification

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device.

**Table 8.1: System Verification of Head**

| Calibration Date | Frequency | Target value (W/kg) |             | Measured value (W/kg) |             | Deviation    |             |
|------------------|-----------|---------------------|-------------|-----------------------|-------------|--------------|-------------|
|                  |           | 10 g Average        | 1 g Average | 10 g Average          | 1 g Average | 10 g Average | 1 g Average |
| 2022/1/7         | 750 MHz   | 5.65                | 8.68        | 5.36                  | 8.12        | -5.13%       | -6.45%      |
| 2022/1/16        | 750 MHz   | 5.65                | 8.68        | 5.80                  | 8.72        | 2.65%        | 0.46%       |
| 2022/1/14        | 835 MHz   | 6.24                | 9.63        | 6.56                  | 10.04       | 5.13%        | 4.26%       |
| 2022/1/20        | 835 MHz   | 6.24                | 9.63        | 6.24                  | 9.44        | 0.00%        | -1.97%      |
| 2022/1/15        | 1750 MHz  | 19.4                | 36.9        | 20.1                  | 37.8        | 3.51%        | 2.44%       |
| 2022/1/18        | 1900 MHz  | 20.9                | 40.1        | 21.3                  | 40.0        | 1.82%        | -0.25%      |
| 2022/1/22        | 2450 MHz  | 24.9                | 53.3        | 24.4                  | 53.6        | -1.85%       | 0.56%       |
| 2022/1/13        | 2600 MHz  | 25.5                | 57.1        | 24.9                  | 56.0        | -2.43%       | -1.93%      |

## 9 General Measurement Procedure

### 9.1 Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

### 9.2 Area Scan

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan), if only one zoom scan follows the area scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of zoom scans has to be increased accordingly.

Area scan parameters extracted from FCC KDB 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz.

|                                                                                                        | $\leq 3$ GHz                                                                                                                                                                                                                                                           | $> 3$ GHz                                              |
|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface | $5 \pm 1$ mm                                                                                                                                                                                                                                                           | $\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm     |
| Maximum probe angle from probe axis to phantom surface normal at the measurement location              | $30^\circ \pm 1^\circ$                                                                                                                                                                                                                                                 | $20^\circ \pm 1^\circ$                                 |
| Maximum area scan spatial resolution: $\Delta x_{\text{Area}}, \Delta y_{\text{Area}}$                 | $\leq 2$ GHz: $\leq 15$ mm<br>$2 - 3$ GHz: $\leq 12$ mm                                                                                                                                                                                                                | $3 - 4$ GHz: $\leq 12$ mm<br>$4 - 6$ GHz: $\leq 10$ mm |
|                                                                                                        | When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device. |                                                        |

### 9.3 Zoom Scan

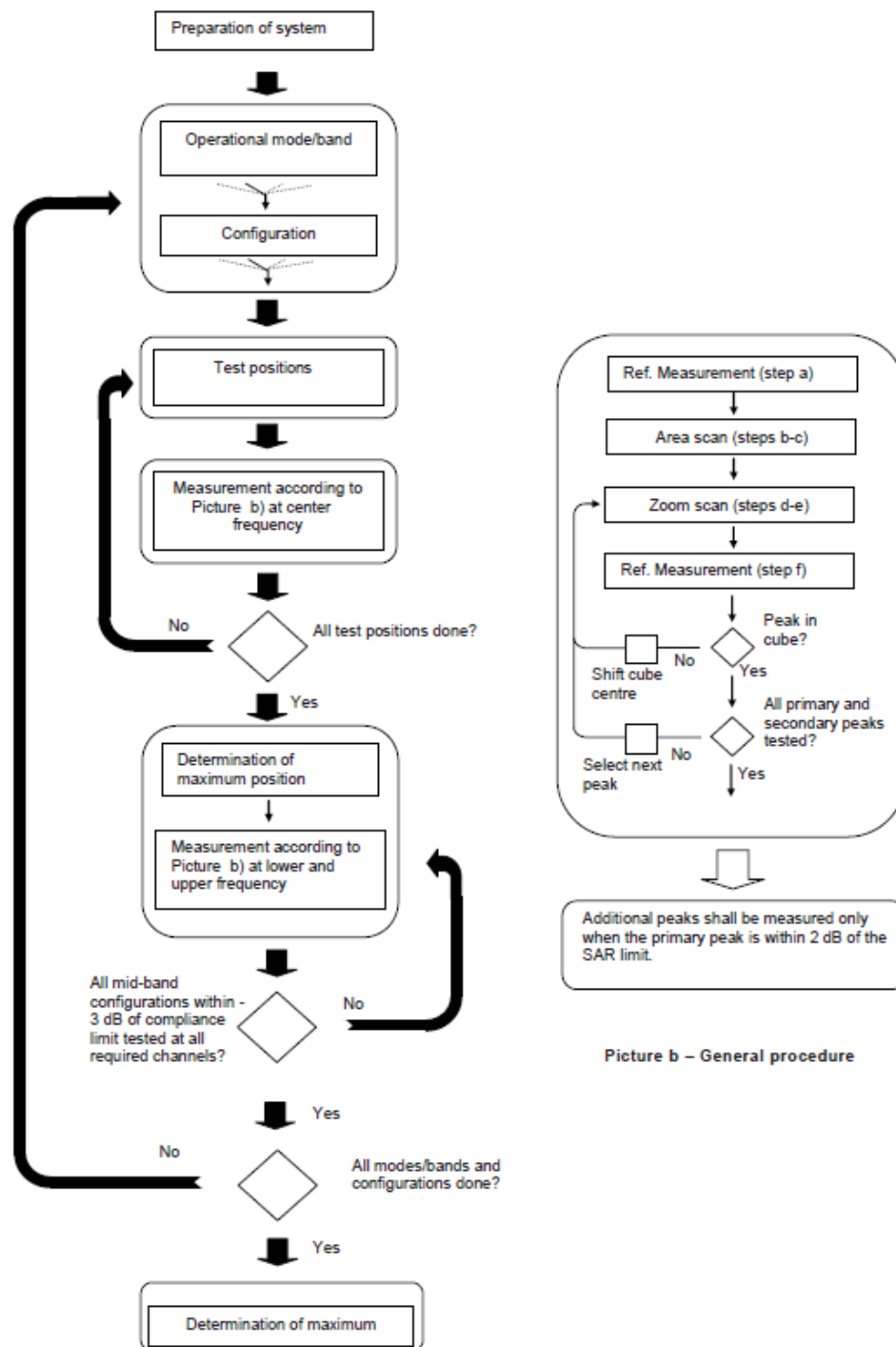
Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10g of simulated tissue. The Zoom Scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job' s label.

Zoom Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz

|                                                                                                                                                                                                                                                                                                                                               |                                           |                                                                                             |                                                                                     |                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Maximum zoom scan spatial resolution: $\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$                                                                                                                                                                                                                                                        |                                           |                                                                                             | $\leq 2 \text{ GHz}: \leq 8 \text{ mm}$<br>$2 - 3 \text{ GHz}: \leq 5 \text{ mm}^*$ | $3 - 4 \text{ GHz}: \leq 5 \text{ mm}^*$<br>$4 - 6 \text{ GHz}: \leq 4 \text{ mm}^*$                                          |
| Maximum zoom scan spatial resolution, normal to phantom surface                                                                                                                                                                                                                                                                               | uniform grid: $\Delta z_{\text{Zoom}}(n)$ |                                                                                             | $\leq 5 \text{ mm}$                                                                 | $3 - 4 \text{ GHz}: \leq 4 \text{ mm}$<br>$4 - 5 \text{ GHz}: \leq 3 \text{ mm}$<br>$5 - 6 \text{ GHz}: \leq 2 \text{ mm}$    |
|                                                                                                                                                                                                                                                                                                                                               | graded grid                               | $\Delta z_{\text{Zoom}}(1)$ : between 1 <sup>st</sup> two points closest to phantom surface | $\leq 4 \text{ mm}$                                                                 | $3 - 4 \text{ GHz}: \leq 3 \text{ mm}$<br>$4 - 5 \text{ GHz}: \leq 2.5 \text{ mm}$<br>$5 - 6 \text{ GHz}: \leq 2 \text{ mm}$  |
|                                                                                                                                                                                                                                                                                                                                               |                                           | $\Delta z_{\text{Zoom}}(n>1)$ : between subsequent points                                   | $\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$                                        |                                                                                                                               |
| Minimum zoom scan volume                                                                                                                                                                                                                                                                                                                      | x, y, z                                   |                                                                                             | $\geq 30 \text{ mm}$                                                                | $3 - 4 \text{ GHz}: \geq 28 \text{ mm}$<br>$4 - 5 \text{ GHz}: \geq 25 \text{ mm}$<br>$5 - 6 \text{ GHz}: \geq 22 \text{ mm}$ |
| Note: $\delta$ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.                                                                                                                                                                                             |                                           |                                                                                             |                                                                                     |                                                                                                                               |
| * When zoom scan is required and the <u>reported</u> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is $\leq 1.4 \text{ W/kg}$ , $\leq 8 \text{ mm}$ , $\leq 7 \text{ mm}$ and $\leq 5 \text{ mm}$ zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz. |                                           |                                                                                             |                                                                                     |                                                                                                                               |

### 9.4 Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as 10.1.



Picture a – Tests to be performed

Picture 9.1Block diagram of the tests to be performed

## **9.5 Area Scan Based 1-g SAR**

### **9.5-1 Requirement of KDB**

According to the KDB447498 D01 v06, when the implementation is based the specific polynomial fit

algorithm as presented at the 29th Bioelectromagnetics Society meeting (2007) and the estimated 1-gSAR is  $\leq 1.2$  W/kg, a zoom scan measurement is not required provided it is also not needed for any other purpose; for example, if the peak SAR location required for simultaneous transmission SAR test exclusion can be determined accurately by the SAR system or manually to discriminate between distinctive peaks and scattered noisy SAR distributions from area scans.

There must not be any warning or alert messages due to various measurement concerns identified by the SAR system; for example, noise in measurements, peaks too close to scan boundary, peaks are too sharp, spatial resolution and uncertainty issues etc. The SAR system verification must also demonstrate that the area scan estimated 1-g SAR is within 3% of the zoom scan 1-g SAR (See Annex B). When all the SAR results for each exposure condition in a frequency band and wireless mode are based on estimated 1-g SAR, the 1-g SAR for the highest SAR configuration must be determined by a zoom scan.

### **9.5-2 Fast SAR Algorithms**

The approach is based on the area scan measurement applying a frequency dependent attenuation parameter. This attenuation parameter was empirically determined by analyzing a large number of phones. The MOTOROLA FAST SAR was developed and validated by the MOTOROLA Research Group in Ft. Lauderdale.

In the initial study, an approximation algorithm based on Linear fit was developed. The accuracy of the algorithm has been demonstrated across a broad frequency range (136-2450 MHz) and for both 1- and 10-g averaged SAR using a sample of 264 SAR measurements from 55 wireless handsets. For the sample size studied, the root-mean-squared errors of the algorithm are 1.2% and 5.8% for 1- and 10-g averaged SAR, respectively. The paper describing the algorithm in detail is expected to be published in August 2004 within the Special Issue of Transactions on MTT.

In the second step, the same research group optimized the fitting algorithm to an Polynomial fit whereby the frequency validity was extended to cover the range 30-6000MHz. Details of this study can be found in the BEMS 2007 Proceedings.

Both algorithms are implemented in DASY software.

## 10 Measurement Procedure for different technologies

### 10.1 GSM/GPRS Measurement Procedures for SAR

GSM / GPRS / EDGE modes is determined by the source-based time-averaged output power including tune-up tolerance. The mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested. Other configurations of GSM / GPRS / EDGE are considered as secondary modes. The 3G SAR test reduction procedure is applied, when the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq \frac{1}{4}$  dB higher than the primary mode, SAR measurement is not required for the secondary mode.

### 10.2 WCDMA Measurement Procedures for SAR

The following procedures are applicable to WCDMA handsets operating under 3GPP Release99, Release 5 and Release 6. The default test configuration is to measure SAR with an established radio link between the DUT and a communication test set using a 12.2kbps RMC (reference measurement channel) configured in Test Loop Mode 1. SAR is selectively confirmed for other physical channel configurations (DPCCH & DPDCH<sub>n</sub>), HSDPA and HSPA (HSUPA/HSDPA) modes according to output power, exposure conditions and device operating capabilities. Both uplink and downlink should be configured with the same RMC or AMR, when required. SAR for Release 5 HSDPA and Release 6 HSPA are measured using the applicable FRC (fixed reference channel) and E-DCH reference channel configurations. Maximum output power is verified according to applicable versions of 3GPP TS 34.121 and SAR must be measured according to these maximum output conditions. When Maximum Power Reduction (MPR) is not implemented according to Cubic Metric (CM) requirements for Release 6 HSPA, the following procedures do not apply.

#### For Release 5 HSDPA Data Devices:

| Sub-test | $\beta_c$ | $\beta_d$ | $\beta_d$ (SF) | $\beta_c / \beta_d$ | $\beta_{hs}$ | CM/dB |
|----------|-----------|-----------|----------------|---------------------|--------------|-------|
| 1        | 2/15      | 15/15     | 64             | 2/15                | 4/15         | 0.0   |
| 2        | 12/15     | 15/15     | 64             | 12/15               | 24/25        | 1.0   |
| 3        | 15/15     | 8/15      | 64             | 15/8                | 30/15        | 1.5   |
| 4        | 15/15     | 4/15      | 64             | 15/4                | 30/15        | 1.5   |

#### For Release 6 HSPA Data Devices

| Sub-test | $\beta_c$ | $\beta_d$ | $\beta_d$ (SF) | $\beta_c / \beta_d$ | $\beta_{hs}$ | $\beta_{ec}$ | $\beta_{ed}$        | $\beta_{ed}$ (SF) | $\beta_{ed}$ (codes) | CM (dB) | MPR (dB) | AG Index | E-TFCI |
|----------|-----------|-----------|----------------|---------------------|--------------|--------------|---------------------|-------------------|----------------------|---------|----------|----------|--------|
| 1        | 11/15     | 15/15     | 64             | 11/15               | 22/15        | 209/225      | 1039/225            | 4                 | 1                    | 1.5     | 1.5      | 20       | 75     |
| 2        | 6/15      | 15/15     | 64             | 6/15                | 12/15        | 12/15        | 12/15               | 4                 | 1                    | 1.5     | 1.5      | 12       | 67     |
| 3        | 15/15     | 9/15      | 64             | 15/9                | 30/15        | 30/15        | $\beta_{ed1}:47/15$ | 4                 | 2                    | 1.5     | 1.5      | 15       | 92     |

|   |       |       |    |       |       |       |                     |   |   |     |     |    |    |
|---|-------|-------|----|-------|-------|-------|---------------------|---|---|-----|-----|----|----|
|   |       |       |    |       |       |       | $\beta_{ed2}:47/15$ |   |   |     |     |    |    |
| 4 | 2/15  | 15/15 | 64 | 2/15  | 4/15  | 4/15  | 56/75               | 4 | 1 | 1.5 | 1.5 | 17 | 71 |
| 5 | 15/15 | 15/15 | 64 | 15/15 | 24/15 | 30/15 | 134/15              | 4 | 1 | 1.5 | 1.5 | 21 | 81 |

## Rel.7 Release 7 HSPA+ Data Devices

**Table C.11.1.4:  $\beta$  values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM**

| Sub-test | $\beta_c$<br>(Note 3) | $\beta_d$ | $\beta_{HS}$<br>(Note 1) | $\beta_{ec}$ | $\beta_{ed}$<br>(2xSF2)<br>(Note 4)          | $\beta_{ed}$<br>(2xSF4)<br>(Note 4)          | CM<br>(dB)<br>(Note 2) | MPR<br>(dB)<br>(Note 2) | AG<br>Index<br>(Note 4) | E-TFCI<br>(Note 5) | E-TFCI<br>(boost) |
|----------|-----------------------|-----------|--------------------------|--------------|----------------------------------------------|----------------------------------------------|------------------------|-------------------------|-------------------------|--------------------|-------------------|
| 1        | 1                     | 0         | 30/15                    | 30/15        | $\beta_{ed1}: 30/15$<br>$\beta_{ed2}: 30/15$ | $\beta_{ed3}: 24/15$<br>$\beta_{ed4}: 24/15$ | 3.5                    | 2.5                     | 14                      | 105                | 105               |

Note 1:  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ .

Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).

Note 3: DPDCH is not configured, therefore the  $\beta_c$  is set to 1 and  $\beta_d = 0$  by default.

Note 4:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.

Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

## Rel.8 DC-HSDPA (Cat 24)

SAR test exclusion for Rel.8 DC-HSDPA must satisfy the SAR test exclusion requirements of Rel.5 HSDPA. SAR test exclusion for DC-HSDPA devices is determined by power measurements according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to qualify for SAR test exclusion.

**Table C.8.1.12: Fixed Reference Channel H-Set 12**

| Parameter                                                                                                                                              | Unit      | Value |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------|
| Nominal Avg. Inf. Bit Rate                                                                                                                             | kbps      | 60    |
| Inter-TTI Distance                                                                                                                                     | TTI's     | 1     |
| Number of HARQ Processes                                                                                                                               | Processes | 6     |
| Information Bit Payload ( $N_{INF}$ )                                                                                                                  | Bits      | 120   |
| Number Code Blocks                                                                                                                                     | Blocks    | 1     |
| Binary Channel Bits Per TTI                                                                                                                            | Bits      | 960   |
| Total Available SML's in UE                                                                                                                            | SML's     | 19200 |
| Number of SML's per HARQ Proc.                                                                                                                         | SML's     | 3200  |
| Coding Rate                                                                                                                                            |           | 0.15  |
| Number of Physical Channel Codes                                                                                                                       | Codes     | 1     |
| Modulation                                                                                                                                             |           | QPSK  |
| Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.               |           |       |
| Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used. |           |       |

### 10.3 LTE Measurement Procedures for SAR

SAR tests for LTE are performed with a base station simulator, Rohde & Schwarz CMW500 or Anritsu MT8821C Closed loop power control was used so the UE transmits with maximum output power during SAR testing.

It is performed for conducted power and SAR based on the KDB941225 D05.

SAR is evaluated separately according to the following procedures for the different test positions in each exposure condition – head, body, body-worn accessories and other use conditions. The procedures in the following subsections are applied separately to test each LTE frequency band.

#### 1) QPSK with 1 RB allocation

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is  $\leq 0.8$  W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is  $> 1.45$  W/kg, SAR is required for all three RB offset configurations for that required test channel.

#### 2) QPSK with 50% RB allocation

The procedures required for 1 RB allocation in 1) are applied to measure the SAR for QPSK with 50% RB allocation.

#### 3) QPSK with 100% RB allocation

For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 1) and 2) are  $\leq 0.8$  W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is  $> 1.45$  W/kg, the remaining required test channels must also be tested.

### TDD test:

TDD testing is performed using guidance from FCC KDB 941225 D05 v02r05 and the SAR test guidance provided in April 2013 TCB works hop notes. TDD is tested at the highest duty factor using UL-DL configuration 0 with special subframe configuration 6 and applying the FDD LTE procedures in KDB 941225 D05 v02r05. SAR testing is performed using the extended cyclic prefix listed in 3GPP TS 36.211.

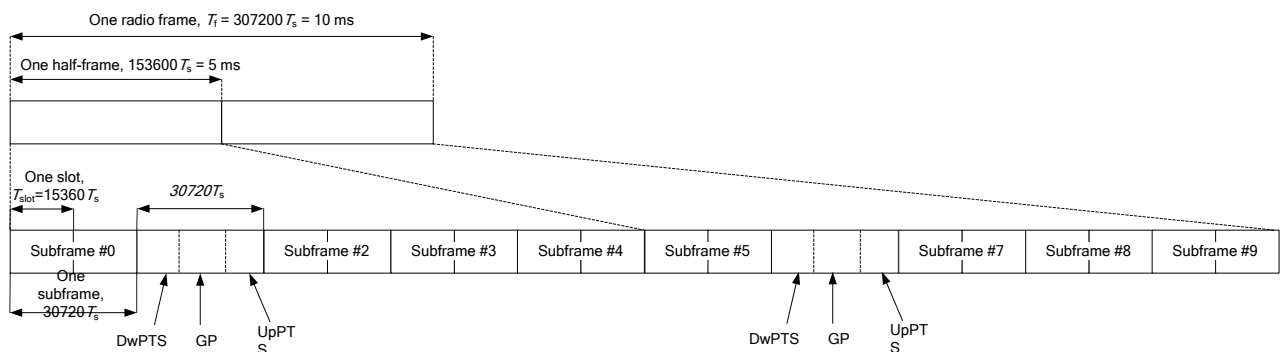


Figure 10.2: Frame structure type 2 (for 5 ms switch-point periodicity)

**Table 10.1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS)**

| Special subframe configuration | Normal cyclic prefix in downlink |                                |                                  | Extended cyclic prefix in downlink |                                |                                  |
|--------------------------------|----------------------------------|--------------------------------|----------------------------------|------------------------------------|--------------------------------|----------------------------------|
|                                | DwPTS                            | UpPTS                          |                                  | DwPTS                              | UpPTS                          |                                  |
|                                |                                  | Normal cyclic prefix in uplink | Extended cyclic prefix in uplink |                                    | Normal cyclic prefix in uplink | Extended cyclic prefix in uplink |
| 0                              | $6592 \cdot T_s$                 | $2192 \cdot T_s$               | $2560 \cdot T_s$                 | $7680 \cdot T_s$                   | $2192 \cdot T_s$               | $2560 \cdot T_s$                 |
| 1                              | $19760 \cdot T_s$                |                                |                                  | $20480 \cdot T_s$                  |                                |                                  |
| 2                              | $21952 \cdot T_s$                |                                |                                  | $23040 \cdot T_s$                  |                                |                                  |
| 3                              | $24144 \cdot T_s$                |                                |                                  | $25600 \cdot T_s$                  |                                |                                  |
| 4                              | $26336 \cdot T_s$                | $4384 \cdot T_s$               | $5120 \cdot T_s$                 | $7680 \cdot T_s$                   | $4384 \cdot T_s$               | $5120 \cdot T_s$                 |
| 5                              | $6592 \cdot T_s$                 |                                |                                  | $20480 \cdot T_s$                  |                                |                                  |
| 6                              | $19760 \cdot T_s$                |                                |                                  | $23040 \cdot T_s$                  |                                |                                  |
| 7                              | $21952 \cdot T_s$                |                                |                                  | $12800 \cdot T_s$                  |                                |                                  |
| 8                              | $24144 \cdot T_s$                |                                |                                  | -                                  | -                              |                                  |
| 9                              | $13168 \cdot T_s$                |                                |                                  | -                                  | -                              |                                  |

**Table 10.2: Uplink-downlink configurations**

| Uplink-downlink configuration | Downlink-to-Uplink Switch-point periodicity | Subframe number |   |   |   |   |   |   |   |   |   |
|-------------------------------|---------------------------------------------|-----------------|---|---|---|---|---|---|---|---|---|
|                               |                                             | 0               | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 0                             | 5 ms                                        | D               | S | U | U | U | D | S | U | U | U |
| 1                             | 5 ms                                        | D               | S | U | U | D | D | S | U | U | D |
| 2                             | 5 ms                                        | D               | S | U | D | D | D | S | U | D | D |
| 3                             | 10 ms                                       | D               | S | U | U | U | D | D | D | D | D |
| 4                             | 10 ms                                       | D               | S | U | U | D | D | D | D | D | D |
| 5                             | 10 ms                                       | D               | S | U | D | D | D | D | D | D | D |
| 6                             | 5 ms                                        | D               | S | U | U | U | D | S | U | U | D |

Duty factor is calculated by:

$$\begin{aligned}
 \text{Duty factor} &= \text{uplink frame} \cdot 6 + \text{UpPTS} \cdot 2 / \text{one frame length} \\
 &= (30720 \cdot T_s \cdot 6 + 5120 \cdot T_s \cdot 2) / 307200 \cdot T_s \\
 &= 0.633
 \end{aligned}$$

According to the KDB 447498 D01, SAR should be evaluated at more than 3 frequencies for devices supporting transmit bands wider than 100MHz. Oct.2014 FCC-TCB conference notes (Dec. 2014 rev.) specifies the 5 test channels to use for 3GPP band 38/41 SAR evaluation.

## 10.4 Bluetooth & Wi-Fi Measurement Procedures for SAR

Normal network operating configurations are not suitable for measuring the SAR of 802.11 transmitters in general. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure that the results are consistent and reliable.

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in a test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters. The test frequencies should correspond to actual channel frequencies defined for domestic use. SAR for devices with switched diversity should be measured with only one antenna transmitting at a time during each SAR measurement, according to a fixed modulation and data rate. The same data pattern should be used for all measurements.

## 11 Conducted Output Power

For Main antenna, there are three sets of tune-up power, Normal power (Receiver on) for Head SAR, Low power (Receiver off and Hotspot off) of WCDMA B2, WCDMA B4, LTE B66, LTE B41, LTE B25 for Body SAR test, and Low power (Receiver off and Hotspot on) of GSM1900, WCDMA B2, WCDMA B4, LTE B25, LTE B66, LTE B41 for hotspot test.

| Normal power | Low Power-<br>Receiver off and<br>Hotspot off | Low Power-<br>Receiver off and<br>Hotspot on |
|--------------|-----------------------------------------------|----------------------------------------------|
| DSI1         | DSI2                                          | DSI3                                         |

### 11.1 GSM Measurement result

#### GSM850(DSI1)

| GSM 850<br>Speech<br>(GMSK) | Measured timeslot-averaged<br>output power (dBm) |       |       | Tune up | calculation | Source-based time-averaged<br>output power (dBm) |       |       |
|-----------------------------|--------------------------------------------------|-------|-------|---------|-------------|--------------------------------------------------|-------|-------|
|                             | 251                                              | 190   | 128   |         |             | 251                                              | 190   | 128   |
| 1Txslot                     | 31.76                                            | 31.69 | 31.68 | 33.3    | -9.03       | 22.73                                            | 22.66 | 22.65 |
| GSM 850<br>GPRS<br>(GMSK)   | Measured timeslot-averaged<br>output power (dBm) |       |       | Tune up | calculation | Source-based time-averaged<br>output power (dBm) |       |       |
|                             | 251                                              | 190   | 128   |         |             | 251                                              | 190   | 128   |
| 1Txslot                     | 31.71                                            | 31.64 | 31.61 | 33.3    | -9.03       | 22.68                                            | 22.61 | 22.58 |
| 2Txslots                    | 28.89                                            | 28.80 | 28.75 | 30      | -6.02       | 22.87                                            | 22.78 | 22.73 |
| 3Txslots                    | 27.95                                            | 27.84 | 27.78 | 29      | -4.26       | 23.69                                            | 23.58 | 23.52 |
| 4Txslots                    | 26.84                                            | 26.73 | 26.68 | 27.5    | -3.01       | 23.83                                            | 23.72 | 23.67 |
| GSM 850<br>EGPRS (GMSK)     | Measured timeslot-averaged<br>output power (dBm) |       |       |         |             | Source-based time-averaged<br>output power (dBm) |       |       |
|                             | 251                                              | 190   | 128   |         |             | 251                                              | 190   | 128   |
| 1Txslot                     | 31.68                                            | 31.63 | 31.60 | 33.3    | -9.03       | 22.65                                            | 22.60 | 22.57 |
| 2Txslots                    | 28.87                                            | 28.79 | 28.75 | 30      | -6.02       | 22.85                                            | 22.77 | 22.73 |
| 3Txslots                    | 27.93                                            | 27.83 | 27.77 | 29      | -4.26       | 23.67                                            | 23.57 | 23.51 |
| 4Txslots                    | 26.82                                            | 26.73 | 26.67 | 27.5    | -3.01       | 23.81                                            | 23.72 | 23.66 |
| GSM 850<br>EGPRS(8PSK)      | Measured timeslot-averaged<br>output power (dBm) |       |       |         |             | Source-based time-averaged<br>output power (dBm) |       |       |
|                             | 251                                              | 190   | 128   |         |             | 251                                              | 190   | 128   |
| 1Txslot                     | 25.94                                            | 26.52 | 26.37 | 27      | -9.03       | 16.91                                            | 17.49 | 17.34 |
| 2Txslots                    | 22.57                                            | 22.71 | 23.43 | 24.5    | -6.02       | 16.55                                            | 16.69 | 17.41 |
| 3Txslots                    | 22.14                                            | 22.34 | 22.17 | 24      | -4.26       | 17.88                                            | 18.08 | 17.91 |
| 4Txslots                    | 20.65                                            | 21.23 | 20.13 | 22.5    | -3.01       | 17.64                                            | 18.22 | 17.12 |

**GSM1900(DSI1/2)**

| GSM 1900<br>Speech<br>(GMSK) | Measured timeslot-averaged<br>output power (dBm) |       |       | Tune up | calculation | Source-based time-averaged<br>output power (dBm) |       |       |
|------------------------------|--------------------------------------------------|-------|-------|---------|-------------|--------------------------------------------------|-------|-------|
|                              | 810                                              | 661   | 512   |         |             | 810                                              | 661   | 512   |
| 1Txslot                      | 28.22                                            | 28.38 | 28.47 | 29.7    | -9.03       | 19.19                                            | 19.35 | 19.44 |
| GSM 1900<br>GPRS<br>(GMSK)   | Measured timeslot-averaged<br>output power (dBm) |       |       | Tune up | calculation | Source-based time-averaged<br>output power (dBm) |       |       |
|                              | 810                                              | 661   | 512   |         |             | 810                                              | 661   | 512   |
| 1Txslot                      | 28.44                                            | 28.57 | 28.66 | 29.7    | -9.03       | 19.41                                            | 19.54 | 19.63 |
| 2Txslots                     | 26.54                                            | 26.53 | 26.51 | 28.5    | -6.02       | 20.52                                            | 20.51 | 20.49 |
| 3Txslots                     | 24.94                                            | 25.01 | 25.13 | 26      | -4.26       | 20.68                                            | 20.75 | 20.87 |
| 4Txslots                     | 23.41                                            | 23.47 | 23.58 | 25      | -3.01       | 20.40                                            | 20.46 | 20.57 |
| GSM 1900<br>EGPRS (GMSK)     | Measured timeslot-averaged<br>output power (dBm) |       |       |         |             | Source-based time-averaged<br>output power (dBm) |       |       |
|                              | 810                                              | 661   | 512   |         |             | 810                                              | 661   | 512   |
| 1Txslot                      | 28.36                                            | 28.49 | 28.57 | 29.7    | -9.03       | 19.33                                            | 19.46 | 19.54 |
| 2Txslots                     | 26.53                                            | 26.52 | 26.51 | 28.5    | -6.02       | 20.51                                            | 20.50 | 20.49 |
| 3Txslots                     | 24.86                                            | 24.94 | 25.03 | 26      | -4.26       | 20.60                                            | 20.68 | 20.77 |
| 4Txslots                     | 23.33                                            | 23.40 | 23.48 | 25      | -3.01       | 20.32                                            | 20.39 | 20.47 |
| GSM 1900<br>EGPRS(8PSK)      | Measured timeslot-averaged<br>output power (dBm) |       |       |         |             | Source-based time-averaged<br>output power (dBm) |       |       |
|                              | 810                                              | 661   | 512   |         |             | 810                                              | 661   | 512   |
| 1Txslot                      | 24.60                                            | 24.59 | 24.66 | 26      | -9.03       | 15.57                                            | 15.56 | 15.63 |
| 2Txslots                     | 21.13                                            | 21.04 | 21.27 | 23      | -6.02       | 15.11                                            | 15.02 | 15.25 |
| 3Txslots                     | 20.11                                            | 20.01 | 20.08 | 22      | -4.26       | 15.85                                            | 15.75 | 15.82 |
| 4Txslots                     | 19.07                                            | 19.21 | 19.24 | 21      | -3.01       | 16.06                                            | 16.20 | 16.23 |

**GSM1900(DSI3)**

| GSM 1900<br>GPRS<br>(GMSK) | Measured timeslot-averaged<br>output power (dBm) |              |              | Tune up   | calculation  | Source-based time-averaged<br>output power (dBm) |              |              |
|----------------------------|--------------------------------------------------|--------------|--------------|-----------|--------------|--------------------------------------------------|--------------|--------------|
|                            | 810                                              | 661          | 512          |           |              | 810                                              | 661          | 512          |
| 1Txslot                    | 26.49                                            | 26.62        | 26.69        | 26.7      | -9.03        | 17.46                                            | 17.59        | 17.66        |
| 2Txslots                   | 24.08                                            | 24.21        | 24.30        | 25.5      | -6.02        | 18.06                                            | 18.19        | 18.28        |
| <b>3Txslots</b>            | <b>22.86</b>                                     | <b>22.95</b> | <b>22.96</b> | <b>23</b> | <b>-4.26</b> | <b>18.60</b>                                     | <b>18.69</b> | <b>18.70</b> |
| 4Txslots                   | 21.57                                            | 21.66        | 21.70        | 22        | -3.01        | 18.56                                            | 18.65        | 18.69        |
| GSM 1900<br>EGPRS (GMSK)   | Measured timeslot-averaged<br>output power (dBm) |              |              |           |              | Source-based time-averaged<br>output power (dBm) |              |              |
|                            | 810                                              | 661          | 512          |           |              | 810                                              | 661          | 512          |
| 1Txslot                    | 26.46                                            | 26.62        | 26.68        | 26.7      | -9.03        | 17.43                                            | 17.59        | 17.65        |
| 2Txslots                   | 24.06                                            | 24.21        | 24.31        | 25.5      | -6.02        | 18.04                                            | 18.19        | 18.29        |
| 3Txslots                   | 22.85                                            | 22.94        | 22.96        | 23        | -4.26        | 18.59                                            | 18.68        | 18.70        |
| 4Txslots                   | 21.55                                            | 21.64        | 21.71        | 22        | -3.01        | 18.54                                            | 18.63        | 18.70        |
| GSM 1900<br>EGPRS(8PSK)    | Measured timeslot-averaged<br>output power (dBm) |              |              |           |              | Source-based time-averaged<br>output power (dBm) |              |              |
|                            | 810                                              | 661          | 512          |           |              | 810                                              | 661          | 512          |
| 1Txslot                    | 23.41                                            | 22.92        | 23.15        | 23.5      | -9.03        | 14.38                                            | 13.89        | 14.12        |
| 2Txslots                   | 19.90                                            | 19.96        | 19.79        | 21        | -6.02        | 13.88                                            | 13.94        | 13.77        |
| 3Txslots                   | 18.18                                            | 18.22        | 18.28        | 19.5      | -4.26        | 13.92                                            | 13.96        | 14.02        |
| 4Txslots                   | 16.56                                            | 16.61        | 16.54        | 18        | -3.01        | 13.55                                            | 13.60        | 13.53        |

## 11.2 WCDMA Measurement result

### WCDMA1900(DSI1)

| Item     | band  | FDDII result        |                   |                     |            |
|----------|-------|---------------------|-------------------|---------------------|------------|
|          | ARFCN | 9538<br>(1907.6MHz) | 9400<br>(1880MHz) | 9262<br>(1852.4MHz) | Tune<br>up |
| WCDMA    | 1     | 22.88               | 23.01             | 23.05               | 24.5       |
| HSUPA    | 1     | 20.47               | 20.45             | 20.58               | 22         |
|          | 2     | 20.51               | 20.48             | 20.60               | 22         |
|          | 3     | 21.54               | 21.50             | 21.63               | 22         |
|          | 4     | 20.01               | 19.96             | 20.12               | 22         |
|          | 5     | 21.49               | 21.48             | 21.61               | 22.5       |
| HSPA+    |       | 21.93               | 21.85             | 22.21               | 23         |
| DC-HSDPA | 1     | 22.35               | 22.46             | 22.68               | 23.5       |
|          | 2     | 22.34               | 22.42             | 22.62               | 23.5       |
|          | 3     | 21.93               | 21.90             | 22.09               | 23.5       |
|          | 4     | 21.97               | 22.01             | 22.12               | 23.5       |

### WCDMA1900(DSI2)

| Item     | band  | FDDII result        |                   |                     |            |
|----------|-------|---------------------|-------------------|---------------------|------------|
|          | ARFCN | 9538<br>(1907.6MHz) | 9400<br>(1880MHz) | 9262<br>(1852.4MHz) | Tune<br>up |
| WCDMA    | 1     | 21.88               | 21.94             | 21.98               | 23.5       |
| HSUPA    | 1     | 19.58               | 19.56             | 19.68               | 21         |
|          | 2     | 19.61               | 19.58             | 19.70               | 21         |
|          | 3     | 20.6                | 20.56             | 20.68               | 22         |
|          | 4     | 19.14               | 19.09             | 19.24               | 21         |
|          | 5     | 20.55               | 20.54             | 20.67               | 22         |
| HSPA+    |       | 21.17               | 21.09             | 21.24               | 23         |
| DC-HSDPA | 1     | 21.37               | 21.48             | 21.69               | 22.5       |
|          | 2     | 21.36               | 21.44             | 21.63               | 22.5       |
|          | 3     | 20.97               | 20.94             | 21.12               | 22.5       |
|          | 4     | 21.01               | 21.05             | 21.15               | 22.5       |

**WCDMA1900(DSI3)**

| Item     | band  | FDDII result        |                   |                     |            |
|----------|-------|---------------------|-------------------|---------------------|------------|
|          | ARFCN | 9538<br>(1907.6MHz) | 9400<br>(1880MHz) | 9262<br>(1852.4MHz) | Tune<br>up |
| WCDMA    | 1     | 19.85               | 19.96             | 19.95               | 21.5       |
| HSUPA    | 1     | 17.76               | 17.74             | 17.85               | 19.5       |
|          | 2     | 17.79               | 17.77             | 17.87               | 19.5       |
|          | 3     | 18.69               | 18.65             | 18.77               | 20         |
|          | 4     | 17.36               | 17.32             | 17.46               | 19         |
|          | 5     | 18.64               | 18.64             | 18.75               | 20         |
| HSPA+    |       | 19.53               | 19.56             | 19.57               | 21.5       |
| DC-HSDPA | 1     | 19.69               | 19.79             | 19.68               | 21.5       |
|          | 2     | 19.68               | 19.75             | 19.62               | 21.5       |
|          | 3     | 19.03               | 19.00             | 19.16               | 20.5       |
|          | 4     | 19.06               | 19.10             | 19.19               | 20.5       |

**WCDMA1700(DSI1)**

| Item     | band  | FDDIV result        |                     |                     |            |
|----------|-------|---------------------|---------------------|---------------------|------------|
|          | ARFCN | 1513<br>(1752.6MHz) | 1412<br>(1732.4MHz) | 1312<br>(1712.4MHz) | Tune<br>up |
| WCDMA    | 1     | 23.29               | 23.22               | 23.11               | 25         |
| HSUPA    | 1     | 21.02               | 20.99               | 21.00               | 22         |
|          | 2     | 21.04               | 21.02               | 21.03               | 22         |
|          | 3     | 21.94               | 21.92               | 21.89               | 22         |
|          | 4     | 20.51               | 20.54               | 20.47               | 21         |
|          | 5     | 21.99               | 22.02               | 22.00               | 22.5       |
| HSPA+    |       | 22.54               | 22.61               | 22.07               | 23         |
| DC-HSDPA | 1     | 22.95               | 22.99               | 22.92               | 23.5       |
|          | 2     | 22.87               | 22.90               | 22.89               | 23.5       |
|          | 3     | 22.36               | 22.42               | 22.38               | 23.5       |
|          | 4     | 22.38               | 22.45               | 22.39               | 23.5       |

**WCDMA1700(DSI2)**

| Item     | band  | FDDIV result        |                     |                     |            |
|----------|-------|---------------------|---------------------|---------------------|------------|
|          | ARFCN | 1513<br>(1752.6MHz) | 1412<br>(1732.4MHz) | 1312<br>(1712.4MHz) | Tune<br>up |
| WCDMA    | 1     | 21.75               | 21.71               | 21.61               | 23.5       |
| HSUPA    | 1     | 19.63               | 19.60               | 19.61               | 21         |
|          | 2     | 19.65               | 19.63               | 19.64               | 21         |
|          | 3     | 20.49               | 20.47               | 20.44               | 22         |
|          | 4     | 19.15               | 19.18               | 19.12               | 21         |
|          | 5     | 20.54               | 20.56               | 20.55               | 22         |
| HSPA+    |       | 21.05               | 21.11               | 20.61               | 22         |
| DC-HSDPA | 1     | 21.43               | 21.47               | 21.40               | 22.5       |

|  |   |       |       |       |      |
|--|---|-------|-------|-------|------|
|  | 2 | 21.36 | 21.39 | 21.38 | 22.5 |
|  | 3 | 20.88 | 20.94 | 20.90 | 22.5 |
|  | 4 | 20.9  | 20.97 | 20.91 | 22.5 |

**WCDMA1700(DSI3)**

| Item     | band  | FDDIV result        |                     |                     |            |
|----------|-------|---------------------|---------------------|---------------------|------------|
|          | ARFCN | 1513<br>(1752.6MHz) | 1412<br>(1732.4MHz) | 1312<br>(1712.4MHz) | Tune<br>up |
| WCDMA    | 1     | 20.23               | 20.21               | 20.15               | 22         |
| HSUPA    | 1     | 18.26               | 18.23               | 18.24               | 19.5       |
|          | 2     | 18.28               | 18.26               | 18.27               | 19.5       |
|          | 3     | 19.06               | 19.04               | 19.01               | 20         |
|          | 4     | 17.82               | 17.84               | 17.78               | 20         |
|          | 5     | 19.1                | 19.13               | 19.11               | 20         |
| HSPA+    |       | 19.58               | 19.64               | 19.57               | 21.5       |
| DC-HSDPA | 1     | 19.93               | 19.97               | 19.91               | 21.5       |
|          | 2     | 19.87               | 19.89               | 19.88               | 21.5       |
|          | 3     | 19.54               | 19.57               | 19.54               | 21.5       |
|          | 4     | 19.54               | 19.50               | 19.55               | 21.5       |

**WCDMA850(DSI1)**

| Item     | band  | FDDV result     |                 |                 |            |
|----------|-------|-----------------|-----------------|-----------------|------------|
|          | ARFCN | 4233 (846.6MHz) | 4183 (836.6MHz) | 4132 (826.4MHz) | Tune<br>up |
| WCDMA    | 1     | 24.08           | 24.09           | 24.10           | 25         |
| HSUPA    | 1     | 20.69           | 20.65           | 20.74           | 21.5       |
|          | 2     | 20.67           | 20.64           | 20.75           | 21.5       |
|          | 3     | 21.44           | 21.46           | 21.47           | 22         |
|          | 4     | 20.18           | 20.16           | 20.23           | 21         |
|          | 5     | 21.46           | 21.44           | 21.47           | 22         |
| HSPA+    |       | 22.33           | 22.33           | 22.28           | 23         |
| DC-HSDPA | 1     | 22.56           | 22.58           | 22.66           | 24         |
|          | 2     | 22.54           | 22.55           | 22.62           | 24         |
|          | 3     | 21.94           | 21.95           | 22.10           | 23         |
|          | 4     | 21.93           | 21.97           | 22.15           | 23         |

### 11.3 LTE Measurement result

**Table 13.3-1: Maximum Power Reduction (MPR) for LTE-DSI1/2**

| Modulation | Channel bandwidth / Transmission bandwidth configuration [RB] |     |     |      |      |      | MPR (dB) |
|------------|---------------------------------------------------------------|-----|-----|------|------|------|----------|
|            | 1.4                                                           | 3   | 5   | 10   | 15   | 20   |          |
|            | MHz                                                           | MHz | MHz | MHz  | MHz  | MHz  |          |
| QPSK       | > 5                                                           | > 4 | > 8 | > 12 | > 16 | > 18 | 1        |
| 16 QAM     | ≤ 5                                                           | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | 1        |
| 16 QAM     | > 5                                                           | > 4 | > 8 | > 12 | > 16 | > 18 | 2        |
| 64 QAM     | ≤ 5                                                           | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | 2        |
| 64 QAM     | > 5                                                           | > 4 | > 8 | > 12 | > 16 | > 18 | 3        |

**Table 13.3-2: Maximum Power Reduction (MPR) for LTE –DSI3**

| Modulation | Channel bandwidth / Transmission bandwidth configuration [RB] |     |     |      |      |      | MPR (dB) |
|------------|---------------------------------------------------------------|-----|-----|------|------|------|----------|
|            | 1.4                                                           | 3   | 5   | 10   | 15   | 20   |          |
|            | MHz                                                           | MHz | MHz | MHz  | MHz  | MHz  |          |
| QPSK       | > 5                                                           | > 4 | > 8 | > 12 | > 16 | > 18 | 0        |
| 16 QAM     | ≤ 5                                                           | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | 0        |
| 16 QAM     | > 5                                                           | > 4 | > 8 | > 12 | > 16 | > 18 | 0        |
| 64 QAM     | ≤ 5                                                           | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | 0        |
| 64 QAM     | > 5                                                           | > 4 | > 8 | > 12 | > 16 | > 18 | 0        |

**Table 11.3-3: The tune up for LTE – DSI1**

| Band            | Tune up |
|-----------------|---------|
| LTE Band 12     | 25      |
| LTE Band 13     | 25      |
| LTE Band 25     | 24.5    |
| LTE Band 26     | 25      |
| LTE Band41(PC3) | 24      |
| LTE Band41(PC2) | 27      |
| LTE Band 66     | 25      |
| LTE Band 71     | 25      |

**Table 11.3-4: The tune up for LTE – DSI2**

| Band            | Tune up |
|-----------------|---------|
| LTE Band 25     | 23.5    |
| LTE Band41(PC3) | 22      |
| LTE Band41(PC2) | 25      |
| LTE Band 66     | 23.5    |

**Table 11.3-5: The tune up for LTE –DSI3**

| Band            | Tune up |
|-----------------|---------|
| LTE Band 25     | 21.5    |
| LTE Band41(PC3) | 20      |
| LTE Band41(PC2) | 23      |
| LTE Band66      | 22      |

**LTE Band12(DSI1)**

|        |                |               |       |       |
|--------|----------------|---------------|-------|-------|
| 1.4MHz | 1RB-High (5)   | 715.3 (23173) | 23.96 | 23.14 |
|        |                | 707.5 (23095) | 23.99 | 23.35 |
|        |                | 699.7 (23017) | 23.98 | 23.20 |
|        | 1RB-Middle (3) | 715.3 (23173) | 24.08 | 23.28 |
|        |                | 707.5 (23095) | 24.07 | 23.31 |
|        |                | 699.7 (23017) | 24.09 | 23.25 |
|        | 1RB-Low (0)    | 715.3 (23173) | 23.96 | 23.24 |
|        |                | 707.5 (23095) | 23.94 | 23.27 |
|        |                | 699.7 (23017) | 23.94 | 23.17 |
|        | 3RB-High (3)   | 715.3 (23173) | 24.07 | 23.03 |
|        |                | 707.5 (23095) | 24.09 | 23.01 |
|        |                | 699.7 (23017) | 24.08 | 23.05 |
|        | 3RB-Middle (1) | 715.3 (23173) | 24.14 | 23.03 |
|        |                | 707.5 (23095) | 24.09 | 23.09 |
|        |                | 699.7 (23017) | 24.11 | 23.07 |
|        | 3RB-Low (0)    | 715.3 (23173) | 24.07 | 23.06 |
|        |                | 707.5 (23095) | 24.06 | 23.08 |
|        |                | 699.7 (23017) | 24.05 | 23.01 |
|        | 6RB (0)        | 715.3 (23173) | 23.08 | 22.19 |
|        |                | 707.5 (23095) | 23.09 | 22.18 |
|        |                | 699.7 (23017) | 23.04 | 22.17 |
| 3MHz   | 1RB-High (14)  | 714.5 (23165) | 23.99 | 23.23 |
|        |                | 707.5 (23095) | 24.00 | 23.26 |
|        |                | 700.5 (23025) | 23.99 | 23.18 |
|        | 1RB-Middle (7) | 714.5 (23165) | 24.13 | 23.35 |
|        |                | 707.5 (23095) | 24.13 | 23.28 |
|        |                | 700.5 (23025) | 24.17 | 23.30 |
|        | 1RB-Low (0)    | 714.5 (23165) | 23.97 | 23.18 |
|        |                | 707.5 (23095) | 24.01 | 23.28 |
|        |                | 700.5 (23025) | 23.99 | 23.28 |
|        | 8RB-High (7)   | 714.5 (23165) | 23.04 | 22.09 |
|        |                | 707.5 (23095) | 23.05 | 22.11 |
|        |                | 700.5 (23025) | 23.02 | 22.10 |
|        | 8RB-Middle (4) | 714.5 (23165) | 23.08 | 22.15 |
|        |                | 707.5 (23095) | 23.07 | 22.13 |
|        |                | 700.5 (23025) | 23.08 | 22.12 |
|        | 8RB-Low (0)    | 714.5 (23165) | 23.03 | 22.09 |
|        |                | 707.5 (23095) | 23.02 | 22.07 |
|        |                | 700.5 (23025) | 23.01 | 22.09 |
|        | 15RB (0)       | 714.5 (23165) | 23.02 | 22.02 |
|        |                | 707.5 (23095) | 23.05 | 22.08 |
|        |                | 700.5 (23025) | 23.04 | 22.04 |

|       |                  |               |       |       |
|-------|------------------|---------------|-------|-------|
| 5MHz  | 1RB-High (24)    | 713.5 (23155) | 23.89 | 23.20 |
|       |                  | 707.5 (23095) | 23.93 | 23.10 |
|       |                  | 701.5 (23035) | 23.87 | 23.07 |
|       | 1RB-Middle (12)  | 713.5 (23155) | 24.11 | 23.34 |
|       |                  | 707.5 (23095) | 24.12 | 23.43 |
|       |                  | 701.5 (23035) | 24.12 | 23.46 |
|       | 1RB-Low (0)      | 713.5 (23155) | 23.91 | 23.26 |
|       |                  | 707.5 (23095) | 23.92 | 23.25 |
|       |                  | 701.5 (23035) | 23.90 | 23.11 |
|       | 12RB-High (13)   | 713.5 (23155) | 22.94 | 21.95 |
|       |                  | 707.5 (23095) | 23.08 | 22.10 |
|       |                  | 701.5 (23035) | 22.98 | 21.96 |
|       | 12RB-Middle (6)  | 713.5 (23155) | 23.06 | 22.06 |
|       |                  | 707.5 (23095) | 23.09 | 22.11 |
|       |                  | 701.5 (23035) | 23.08 | 22.04 |
|       | 12RB-Low (0)     | 713.5 (23155) | 23.03 | 22.03 |
|       |                  | 707.5 (23095) | 23.03 | 22.03 |
|       |                  | 701.5 (23035) | 23.05 | 22.02 |
|       | 25RB (0)         | 713.5 (23155) | 23.02 | 22.04 |
|       |                  | 707.5 (23095) | 23.12 | 22.08 |
|       |                  | 701.5 (23035) | 23.00 | 22.02 |
| 10MHz | 1RB-High (49)    | 711 (23130)   | 23.97 | 23.00 |
|       |                  | 707.5 (23095) | 23.97 | 23.12 |
|       |                  | 704 (23060)   | 24.03 | 23.04 |
|       | 1RB-Middle (24)  | 711 (23130)   | 24.14 | 23.19 |
|       |                  | 707.5 (23095) | 24.13 | 23.22 |
|       |                  | 704 (23060)   | 24.15 | 23.19 |
|       | 1RB-Low (0)      | 711 (23130)   | 24.05 | 23.23 |
|       |                  | 707.5 (23095) | 24.01 | 23.10 |
|       |                  | 704 (23060)   | 24.04 | 23.16 |
|       | 25RB-High (25)   | 711 (23130)   | 23.06 | 22.07 |
|       |                  | 707.5 (23095) | 23.21 | 22.19 |
|       |                  | 704 (23060)   | 23.12 | 22.09 |
|       | 25RB-Middle (12) | 711 (23130)   | 23.10 | 22.11 |
|       |                  | 707.5 (23095) | 23.13 | 22.11 |
|       |                  | 704 (23060)   | 23.12 | 22.10 |
|       | 25RB-Low (0)     | 711 (23130)   | 23.04 | 22.07 |
|       |                  | 707.5 (23095) | 23.16 | 22.16 |
|       |                  | 704 (23060)   | 23.25 | 22.12 |
|       | 50RB (0)         | 711 (23130)   | 23.10 | 22.02 |
|       |                  | 707.5 (23095) | 23.20 | 22.19 |
|       |                  | 704 (23060)   | 23.16 | 22.14 |

**LTE Band13(DSI1)**

|       |                  |               |       |       |
|-------|------------------|---------------|-------|-------|
| 5MHz  | 1RB-High (24)    | 784.5 (23255) | 23.67 | 22.94 |
|       |                  | 782 (23230)   | 23.65 | 23.00 |
|       |                  | 779.5 (23205) | 23.69 | 22.87 |
|       | 1RB-Middle (12)  | 784.5 (23255) | 23.93 | 23.23 |
|       |                  | 782 (23230)   | 23.94 | 23.21 |
|       |                  | 779.5 (23205) | 23.99 | 23.23 |
|       | 1RB-Low (0)      | 784.5 (23255) | 23.75 | 22.94 |
|       |                  | 782 (23230)   | 23.73 | 22.96 |
|       |                  | 779.5 (23205) | 23.73 | 22.94 |
|       | 12RB-High (13)   | 784.5 (23255) | 22.92 | 21.87 |
|       |                  | 782 (23230)   | 22.85 | 21.80 |
|       |                  | 779.5 (23205) | 22.87 | 21.86 |
|       | 12RB-Middle (6)  | 784.5 (23255) | 22.91 | 21.89 |
|       |                  | 782 (23230)   | 22.90 | 21.85 |
|       |                  | 779.5 (23205) | 22.92 | 21.87 |
|       | 12RB-Low (0)     | 784.5 (23255) | 22.91 | 21.85 |
|       |                  | 782 (23230)   | 22.86 | 21.83 |
|       |                  | 779.5 (23205) | 22.75 | 21.68 |
|       | 25RB (0)         | 784.5 (23255) | 22.91 | 21.90 |
|       |                  | 782 (23230)   | 22.83 | 21.83 |
|       |                  | 779.5 (23205) | 22.83 | 21.82 |
| 10MHz | 1RB-High (49)    | 782 (23230)   | 23.70 | 22.81 |
|       | 1RB-Middle (24)  | 782 (23230)   | 23.94 | 22.87 |
|       | 1RB-Low (0)      | 782 (23230)   | 23.87 | 22.80 |
|       | 25RB-High (25)   | 782 (23230)   | 22.93 | 21.91 |
|       | 25RB-Middle (12) | 782 (23230)   | 22.94 | 21.86 |
|       | 25RB-Low (0)     | 782 (23230)   | 22.79 | 21.74 |
|       | 50RB (0)         | 782 (23230)   | 22.90 | 21.86 |

**LTE Band25(DSI1)**

|        |                |                |       |       |
|--------|----------------|----------------|-------|-------|
| 1.4MHz | 1RB-High (5)   | 1914.3 (26683) | 23.20 | 22.50 |
|        |                | 1882.5 (26365) | 23.14 | 22.46 |
|        |                | 1850.7 (26047) | 23.18 | 22.53 |
|        | 1RB-Middle (3) | 1914.3 (26683) | 23.37 | 22.56 |
|        |                | 1882.5 (26365) | 23.33 | 22.71 |
|        |                | 1850.7 (26047) | 23.33 | 22.75 |
|        | 1RB-Low (0)    | 1914.3 (26683) | 23.22 | 22.37 |
|        |                | 1882.5 (26365) | 23.15 | 22.54 |
|        |                | 1850.7 (26047) | 23.20 | 22.55 |
|        | 3RB-High (3)   | 1914.3 (26683) | 23.35 | 22.24 |
|        |                | 1882.5 (26365) | 23.26 | 22.26 |
|        |                | 1850.7 (26047) | 23.28 | 22.32 |
|        | 3RB-Middle (1) | 1914.3 (26683) | 23.39 | 22.37 |
|        |                | 1882.5 (26365) | 23.29 | 22.34 |
|        |                | 1850.7 (26047) | 23.34 | 22.42 |
|        | 3RB-Low (0)    | 1914.3 (26683) | 23.34 | 22.31 |
|        |                | 1882.5 (26365) | 23.27 | 22.30 |
|        |                | 1850.7 (26047) | 23.29 | 22.36 |
|        | 6RB (0)        | 1914.3 (26683) | 22.39 | 21.46 |
|        |                | 1882.5 (26365) | 22.28 | 21.35 |
|        |                | 1850.7 (26047) | 22.29 | 21.42 |
| 3MHz   | 1RB-High (14)  | 1913.5 (26675) | 23.25 | 22.43 |
|        |                | 1882.5 (26365) | 23.17 | 22.59 |
|        |                | 1851.5 (26055) | 23.20 | 22.57 |
|        | 1RB-Middle (7) | 1913.5 (26675) | 23.41 | 22.53 |
|        |                | 1882.5 (26365) | 23.39 | 22.67 |
|        |                | 1851.5 (26055) | 23.44 | 22.72 |
|        | 1RB-Low (0)    | 1913.5 (26675) | 23.19 | 22.48 |
|        |                | 1882.5 (26365) | 23.19 | 22.57 |
|        |                | 1851.5 (26055) | 23.22 | 22.56 |
|        | 8RB-High (7)   | 1913.5 (26675) | 22.27 | 21.37 |
|        |                | 1882.5 (26365) | 22.24 | 21.33 |
|        |                | 1851.5 (26055) | 22.27 | 21.35 |
|        | 8RB-Middle (4) | 1913.5 (26675) | 22.35 | 21.40 |
|        |                | 1882.5 (26365) | 22.29 | 21.36 |
|        |                | 1851.5 (26055) | 22.31 | 21.41 |
|        | 8RB-Low (0)    | 1913.5 (26675) | 22.31 | 21.40 |
|        |                | 1882.5 (26365) | 22.24 | 21.35 |
|        |                | 1851.5 (26055) | 22.27 | 21.35 |
|        | 15RB (0)       | 1913.5 (26675) | 22.32 | 21.35 |
|        |                | 1882.5 (26365) | 22.21 | 21.25 |
|        |                | 1851.5 (26055) | 22.25 | 21.28 |

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 5MHz  | 1RB-High (24)    | 1912.5 (26665) | 23.10 | 22.36 |
|       |                  | 1882.5 (26365) | 23.05 | 22.42 |
|       |                  | 1852.5 (26065) | 23.09 | 22.35 |
|       | 1RB-Middle (12)  | 1912.5 (26665) | 23.32 | 22.73 |
|       |                  | 1882.5 (26365) | 23.33 | 22.69 |
|       |                  | 1852.5 (26065) | 23.33 | 22.81 |
|       | 1RB-Low (0)      | 1912.5 (26665) | 23.08 | 22.44 |
|       |                  | 1882.5 (26365) | 23.07 | 22.46 |
|       |                  | 1852.5 (26065) | 23.09 | 22.55 |
|       | 12RB-High (13)   | 1912.5 (26665) | 22.24 | 21.23 |
|       |                  | 1882.5 (26365) | 22.21 | 21.25 |
|       |                  | 1852.5 (26065) | 22.28 | 21.26 |
|       | 12RB-Middle (6)  | 1912.5 (26665) | 22.34 | 21.37 |
|       |                  | 1882.5 (26365) | 22.31 | 21.33 |
|       |                  | 1852.5 (26065) | 22.30 | 21.32 |
|       | 12RB-Low (0)     | 1912.5 (26665) | 22.36 | 21.39 |
|       |                  | 1882.5 (26365) | 22.25 | 21.25 |
|       |                  | 1852.5 (26065) | 22.25 | 21.24 |
|       | 25RB (0)         | 1912.5 (26665) | 22.31 | 21.30 |
|       |                  | 1882.5 (26365) | 22.22 | 21.27 |
|       |                  | 1852.5 (26065) | 22.24 | 21.26 |
| 10MHz | 1RB-High (49)    | 1910 (26640)   | 23.22 | 22.43 |
|       |                  | 1882.5 (26365) | 23.21 | 22.66 |
|       |                  | 1855 (26090)   | 23.15 | 22.56 |
|       | 1RB-Middle (24)  | 1910 (26640)   | 23.30 | 22.55 |
|       |                  | 1882.5 (26365) | 23.30 | 22.56 |
|       |                  | 1855 (26090)   | 23.32 | 22.67 |
|       | 1RB-Low (0)      | 1910 (26640)   | 23.21 | 22.66 |
|       |                  | 1882.5 (26365) | 23.21 | 22.51 |
|       |                  | 1855 (26090)   | 23.21 | 22.52 |
|       | 25RB-High (25)   | 1910 (26640)   | 22.19 | 21.20 |
|       |                  | 1882.5 (26365) | 22.28 | 21.34 |
|       |                  | 1855 (26090)   | 22.32 | 21.33 |
|       | 25RB-Middle (12) | 1910 (26640)   | 22.30 | 21.33 |
|       |                  | 1882.5 (26365) | 22.27 | 21.31 |
|       |                  | 1855 (26090)   | 22.28 | 21.30 |
|       | 25RB-Low (0)     | 1910 (26640)   | 22.37 | 21.39 |
|       |                  | 1882.5 (26365) | 22.31 | 21.35 |
|       |                  | 1855 (26090)   | 22.22 | 21.27 |
|       | 50RB (0)         | 1910 (26640)   | 22.29 | 21.32 |
|       |                  | 1882.5 (26365) | 22.31 | 21.35 |
|       |                  | 1855 (26090)   | 22.29 | 21.31 |

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 15MHz | 1RB-High (74)    | 1907.5 (26615) | 23.21 | 22.47 |
|       |                  | 1882.5 (26365) | 23.14 | 22.56 |
|       |                  | 1857.5 (26115) | 23.15 | 22.38 |
|       | 1RB-Middle (37)  | 1907.5 (26615) | 23.27 | 22.60 |
|       |                  | 1882.5 (26365) | 23.22 | 22.65 |
|       |                  | 1857.5 (26115) | 23.26 | 22.63 |
|       | 1RB-Low (0)      | 1907.5 (26615) | 23.22 | 22.63 |
|       |                  | 1882.5 (26365) | 23.18 | 22.63 |
|       |                  | 1857.5 (26115) | 23.18 | 22.55 |
|       | 36RB-High (38)   | 1907.5 (26615) | 22.28 | 21.23 |
|       |                  | 1882.5 (26365) | 22.29 | 21.29 |
|       |                  | 1857.5 (26115) | 22.31 | 21.26 |
|       | 36RB-Middle (19) | 1907.5 (26615) | 22.39 | 21.37 |
|       |                  | 1882.5 (26365) | 22.33 | 21.34 |
|       |                  | 1857.5 (26115) | 22.32 | 21.29 |
|       | 36RB-Low (0)     | 1907.5 (26615) | 22.35 | 21.36 |
|       |                  | 1882.5 (26365) | 22.30 | 21.31 |
|       |                  | 1857.5 (26115) | 22.26 | 21.27 |
|       | 75RB (0)         | 1907.5 (26615) | 22.30 | 21.32 |
|       |                  | 1882.5 (26365) | 22.31 | 21.34 |
|       |                  | 1857.5 (26115) | 22.27 | 21.26 |
| 20MHz | 1RB-High (99)    | 1905 (26590)   | 23.31 | 22.60 |
|       |                  | 1882.5 (26365) | 23.26 | 22.57 |
|       |                  | 1860 (26140)   | 23.22 | 22.60 |
|       | 1RB-Middle (50)  | 1905 (26590)   | 23.53 | 22.94 |
|       |                  | 1882.5 (26365) | 23.46 | 22.93 |
|       |                  | 1860 (26140)   | 23.49 | 22.89 |
|       | 1RB-Low (0)      | 1905 (26590)   | 23.30 | 22.76 |
|       |                  | 1882.5 (26365) | 23.30 | 22.73 |
|       |                  | 1860 (26140)   | 23.32 | 22.69 |
|       | 50RB-High (50)   | 1905 (26590)   | 22.32 | 21.37 |
|       |                  | 1882.5 (26365) | 22.45 | 21.47 |
|       |                  | 1860 (26140)   | 22.41 | 21.42 |
|       | 50RB-Middle (25) | 1905 (26590)   | 22.53 | 21.59 |
|       |                  | 1882.5 (26365) | 22.52 | 21.55 |
|       |                  | 1860 (26140)   | 22.48 | 21.51 |
|       | 50RB-Low (0)     | 1905 (26590)   | 22.51 | 21.53 |
|       |                  | 1882.5 (26365) | 22.48 | 21.49 |
|       |                  | 1860 (26140)   | 22.39 | 21.38 |
|       | 100RB (0)        | 1905 (26590)   | 22.44 | 21.45 |
|       |                  | 1882.5 (26365) | 22.47 | 21.48 |
|       |                  | 1860 (26140)   | 22.39 | 21.43 |

**LTE Band25(DS12)**

|        |                |                |       |       |
|--------|----------------|----------------|-------|-------|
| 1.4MHz | 1RB-High (5)   | 1914.3 (26683) | 22.34 | 21.72 |
|        |                | 1882.5 (26365) | 22.34 | 21.61 |
|        |                | 1850.7 (26047) | 22.34 | 21.75 |
|        | 1RB-Middle (3) | 1914.3 (26683) | 22.50 | 21.89 |
|        |                | 1882.5 (26365) | 22.44 | 21.77 |
|        |                | 1850.7 (26047) | 22.49 | 21.77 |
|        | 1RB-Low (0)    | 1914.3 (26683) | 22.34 | 21.70 |
|        |                | 1882.5 (26365) | 22.33 | 21.67 |
|        |                | 1850.7 (26047) | 22.36 | 21.74 |
|        | 3RB-High (3)   | 1914.3 (26683) | 22.47 | 21.44 |
|        |                | 1882.5 (26365) | 22.44 | 21.47 |
|        |                | 1850.7 (26047) | 22.43 | 21.50 |
|        | 3RB-Middle (1) | 1914.3 (26683) | 22.51 | 21.52 |
|        |                | 1882.5 (26365) | 22.46 | 21.54 |
|        |                | 1850.7 (26047) | 22.51 | 21.49 |
|        | 3RB-Low (0)    | 1914.3 (26683) | 22.47 | 21.40 |
|        |                | 1882.5 (26365) | 22.41 | 21.45 |
|        |                | 1850.7 (26047) | 22.44 | 21.42 |
|        | 6RB (0)        | 1914.3 (26683) | 21.47 | 20.60 |
|        |                | 1882.5 (26365) | 21.37 | 20.54 |
|        |                | 1850.7 (26047) | 21.41 | 20.54 |
| 3MHz   | 1RB-High (14)  | 1913.5 (26675) | 22.46 | 21.82 |
|        |                | 1882.5 (26365) | 22.47 | 21.84 |
|        |                | 1851.5 (26055) | 22.48 | 21.85 |
|        | 1RB-Middle (7) | 1913.5 (26675) | 22.61 | 21.94 |
|        |                | 1882.5 (26365) | 22.59 | 21.96 |
|        |                | 1851.5 (26055) | 22.61 | 22.01 |
|        | 1RB-Low (0)    | 1913.5 (26675) | 22.46 | 21.73 |
|        |                | 1882.5 (26365) | 22.45 | 21.88 |
|        |                | 1851.5 (26055) | 22.46 | 21.92 |
|        | 8RB-High (7)   | 1913.5 (26675) | 21.51 | 20.63 |
|        |                | 1882.5 (26365) | 21.45 | 20.56 |
|        |                | 1851.5 (26055) | 21.46 | 20.57 |
|        | 8RB-Middle (4) | 1913.5 (26675) | 21.56 | 20.67 |
|        |                | 1882.5 (26365) | 21.51 | 20.60 |
|        |                | 1851.5 (26055) | 21.52 | 20.58 |
|        | 8RB-Low (0)    | 1913.5 (26675) | 21.51 | 20.60 |
|        |                | 1882.5 (26365) | 21.43 | 20.58 |
|        |                | 1851.5 (26055) | 21.46 | 20.54 |
|        | 15RB (0)       | 1913.5 (26675) | 21.55 | 20.58 |
|        |                | 1882.5 (26365) | 21.40 | 20.46 |
|        |                | 1851.5 (26055) | 21.45 | 20.52 |

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 5MHz  | 1RB-High (24)    | 1912.5 (26665) | 22.29 | 21.70 |
|       |                  | 1882.5 (26365) | 22.23 | 21.64 |
|       |                  | 1852.5 (26065) | 22.27 | 21.57 |
|       | 1RB-Middle (12)  | 1912.5 (26665) | 22.58 | 21.85 |
|       |                  | 1882.5 (26365) | 22.50 | 21.87 |
|       |                  | 1852.5 (26065) | 22.62 | 21.79 |
|       | 1RB-Low (0)      | 1912.5 (26665) | 22.23 | 21.58 |
|       |                  | 1882.5 (26365) | 22.27 | 21.58 |
|       |                  | 1852.5 (26065) | 22.28 | 21.56 |
|       | 12RB-High (13)   | 1912.5 (26665) | 21.35 | 20.41 |
|       |                  | 1882.5 (26365) | 21.34 | 20.32 |
|       |                  | 1852.5 (26065) | 21.41 | 20.43 |
|       | 12RB-Middle (6)  | 1912.5 (26665) | 21.46 | 20.53 |
|       |                  | 1882.5 (26365) | 21.41 | 20.45 |
|       |                  | 1852.5 (26065) | 21.44 | 20.47 |
|       | 12RB-Low (0)     | 1912.5 (26665) | 21.49 | 20.52 |
|       |                  | 1882.5 (26365) | 21.39 | 20.39 |
|       |                  | 1852.5 (26065) | 21.38 | 20.38 |
|       | 25RB (0)         | 1912.5 (26665) | 21.40 | 20.44 |
|       |                  | 1882.5 (26365) | 21.35 | 20.37 |
|       |                  | 1852.5 (26065) | 21.38 | 20.40 |
| 10MHz | 1RB-High (49)    | 1910 (26640)   | 22.32 | 21.65 |
|       |                  | 1882.5 (26365) | 22.30 | 21.62 |
|       |                  | 1855 (26090)   | 22.29 | 21.70 |
|       | 1RB-Middle (24)  | 1910 (26640)   | 22.52 | 21.86 |
|       |                  | 1882.5 (26365) | 22.45 | 21.81 |
|       |                  | 1855 (26090)   | 22.52 | 21.91 |
|       | 1RB-Low (0)      | 1910 (26640)   | 22.34 | 21.70 |
|       |                  | 1882.5 (26365) | 22.32 | 21.75 |
|       |                  | 1855 (26090)   | 22.34 | 21.64 |
|       | 25RB-High (25)   | 1910 (26640)   | 21.28 | 20.32 |
|       |                  | 1882.5 (26365) | 21.39 | 20.43 |
|       |                  | 1855 (26090)   | 21.42 | 20.45 |
|       | 25RB-Middle (12) | 1910 (26640)   | 21.47 | 20.52 |
|       |                  | 1882.5 (26365) | 21.43 | 20.48 |
|       |                  | 1855 (26090)   | 21.46 | 20.49 |
|       | 25RB-Low (0)     | 1910 (26640)   | 21.49 | 20.52 |
|       |                  | 1882.5 (26365) | 21.45 | 20.47 |
|       |                  | 1855 (26090)   | 21.41 | 20.43 |
|       | 50RB (0)         | 1910 (26640)   | 21.38 | 20.42 |
|       |                  | 1882.5 (26365) | 21.44 | 20.47 |
|       |                  | 1855 (26090)   | 21.40 | 20.42 |

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 15MHz | 1RB-High (74)    | 1907.5 (26615) | 22.19 | 21.61 |
|       |                  | 1882.5 (26365) | 22.18 | 21.60 |
|       |                  | 1857.5 (26115) | 22.16 | 21.38 |
|       | 1RB-Middle (37)  | 1907.5 (26615) | 22.39 | 21.73 |
|       |                  | 1882.5 (26365) | 22.39 | 21.74 |
|       |                  | 1857.5 (26115) | 22.39 | 21.78 |
|       | 1RB-Low (0)      | 1907.5 (26615) | 22.23 | 21.57 |
|       |                  | 1882.5 (26365) | 22.19 | 21.52 |
|       |                  | 1857.5 (26115) | 22.22 | 21.54 |
|       | 36RB-High (38)   | 1907.5 (26615) | 21.27 | 20.30 |
|       |                  | 1882.5 (26365) | 21.33 | 20.32 |
|       |                  | 1857.5 (26115) | 21.32 | 20.31 |
|       | 36RB-Middle (19) | 1907.5 (26615) | 21.42 | 20.43 |
|       |                  | 1882.5 (26365) | 21.40 | 20.40 |
|       |                  | 1857.5 (26115) | 21.39 | 20.39 |
|       | 36RB-Low (0)     | 1907.5 (26615) | 21.38 | 20.41 |
|       |                  | 1882.5 (26365) | 21.34 | 20.35 |
|       |                  | 1857.5 (26115) | 21.32 | 20.32 |
|       | 75RB (0)         | 1907.5 (26615) | 21.30 | 20.34 |
|       |                  | 1882.5 (26365) | 21.34 | 20.36 |
|       |                  | 1857.5 (26115) | 21.30 | 20.33 |
| 20MHz | 1RB-High (99)    | 1905 (26590)   | 22.12 | 21.40 |
|       |                  | 1882.5 (26365) | 22.06 | 21.50 |
|       |                  | 1860 (26140)   | 22.04 | 21.33 |
|       | 1RB-Middle (50)  | 1905 (26590)   | 22.42 | 21.91 |
|       |                  | 1882.5 (26365) | 22.39 | 21.81 |
|       |                  | 1860 (26140)   | 22.41 | 21.73 |
|       | 1RB-Low (0)      | 1905 (26590)   | 22.06 | 21.46 |
|       |                  | 1882.5 (26365) | 22.08 | 21.49 |
|       |                  | 1860 (26140)   | 22.08 | 21.55 |
|       | 50RB-High (50)   | 1905 (26590)   | 21.11 | 20.15 |
|       |                  | 1882.5 (26365) | 21.22 | 20.25 |
|       |                  | 1860 (26140)   | 21.18 | 20.22 |
|       | 50RB-Middle (25) | 1905 (26590)   | 21.39 | 20.43 |
|       |                  | 1882.5 (26365) | 21.36 | 20.44 |
|       |                  | 1860 (26140)   | 21.33 | 20.36 |
|       | 50RB-Low (0)     | 1905 (26590)   | 21.34 | 20.38 |
|       |                  | 1882.5 (26365) | 21.34 | 20.37 |
|       |                  | 1860 (26140)   | 21.24 | 20.26 |
|       | 100RB (0)        | 1905 (26590)   | 21.26 | 20.27 |
|       |                  | 1882.5 (26365) | 21.30 | 20.29 |
|       |                  | 1860 (26140)   | 21.21 | 20.22 |

**LTE Band25(DSI3)**

|        |                |                |       |       |
|--------|----------------|----------------|-------|-------|
| 1.4MHz | 1RB-High (5)   | 1914.3 (26683) | 20.34 | 20.60 |
|        |                | 1882.5 (26365) | 20.33 | 20.70 |
|        |                | 1850.7 (26047) | 20.30 | 20.73 |
|        | 1RB-Middle (3) | 1914.3 (26683) | 20.45 | 20.95 |
|        |                | 1882.5 (26365) | 20.43 | 20.84 |
|        |                | 1850.7 (26047) | 20.42 | 20.74 |
|        | 1RB-Low (0)    | 1914.3 (26683) | 20.37 | 20.75 |
|        |                | 1882.5 (26365) | 20.24 | 20.70 |
|        |                | 1850.7 (26047) | 20.32 | 20.71 |
|        | 3RB-High (3)   | 1914.3 (26683) | 20.48 | 20.51 |
|        |                | 1882.5 (26365) | 20.42 | 20.43 |
|        |                | 1850.7 (26047) | 20.39 | 20.46 |
|        | 3RB-Middle (1) | 1914.3 (26683) | 20.50 | 20.57 |
|        |                | 1882.5 (26365) | 20.42 | 20.44 |
|        |                | 1850.7 (26047) | 20.49 | 20.53 |
|        | 3RB-Low (0)    | 1914.3 (26683) | 20.47 | 20.47 |
|        |                | 1882.5 (26365) | 20.37 | 20.44 |
|        |                | 1850.7 (26047) | 20.42 | 20.36 |
|        | 6RB (0)        | 1914.3 (26683) | 20.45 | 20.64 |
|        |                | 1882.5 (26365) | 20.39 | 20.52 |
|        |                | 1850.7 (26047) | 20.40 | 20.49 |
|        |                |                |       |       |
| 3MHz   | 1RB-High (14)  | 1913.5 (26675) | 20.39 | 20.73 |
|        |                | 1882.5 (26365) | 20.30 | 20.65 |
|        |                | 1851.5 (26055) | 20.29 | 20.75 |
|        | 1RB-Middle (7) | 1913.5 (26675) | 20.50 | 20.90 |
|        |                | 1882.5 (26365) | 20.44 | 20.83 |
|        |                | 1851.5 (26055) | 20.52 | 20.78 |
|        | 1RB-Low (0)    | 1913.5 (26675) | 20.35 | 20.72 |
|        |                | 1882.5 (26365) | 20.31 | 20.67 |
|        |                | 1851.5 (26055) | 20.33 | 20.69 |
|        | 8RB-High (7)   | 1913.5 (26675) | 20.40 | 20.53 |
|        |                | 1882.5 (26365) | 20.32 | 20.48 |
|        |                | 1851.5 (26055) | 20.36 | 20.44 |
|        | 8RB-Middle (4) | 1913.5 (26675) | 20.46 | 20.54 |
|        |                | 1882.5 (26365) | 20.35 | 20.47 |
|        |                | 1851.5 (26055) | 20.39 | 20.50 |
|        | 8RB-Low (0)    | 1913.5 (26675) | 20.41 | 20.50 |
|        |                | 1882.5 (26365) | 20.34 | 20.44 |
|        |                | 1851.5 (26055) | 20.37 | 20.47 |
|        | 15RB (0)       | 1913.5 (26675) | 20.42 | 20.48 |
|        |                | 1882.5 (26365) | 20.30 | 20.37 |
|        |                | 1851.5 (26055) | 20.32 | 20.38 |

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 5MHz  | 1RB-High (24)    | 1912.5 (26665) | 20.33 | 20.63 |
|       |                  | 1882.5 (26365) | 20.26 | 20.63 |
|       |                  | 1852.5 (26065) | 20.25 | 20.50 |
|       | 1RB-Middle (12)  | 1912.5 (26665) | 20.65 | 20.92 |
|       |                  | 1882.5 (26365) | 20.58 | 20.76 |
|       |                  | 1852.5 (26065) | 20.54 | 20.81 |
|       | 1RB-Low (0)      | 1912.5 (26665) | 20.29 | 20.56 |
|       |                  | 1882.5 (26365) | 20.29 | 20.66 |
|       |                  | 1852.5 (26065) | 20.31 | 20.67 |
|       | 12RB-High (13)   | 1912.5 (26665) | 20.42 | 20.38 |
|       |                  | 1882.5 (26365) | 20.37 | 20.32 |
|       |                  | 1852.5 (26065) | 20.42 | 20.36 |
|       | 12RB-Middle (6)  | 1912.5 (26665) | 20.54 | 20.50 |
|       |                  | 1882.5 (26365) | 20.44 | 20.39 |
|       |                  | 1852.5 (26065) | 20.45 | 20.43 |
|       | 12RB-Low (0)     | 1912.5 (26665) | 20.54 | 20.49 |
|       |                  | 1882.5 (26365) | 20.40 | 20.39 |
|       |                  | 1852.5 (26065) | 20.40 | 20.34 |
|       | 25RB (0)         | 1912.5 (26665) | 20.47 | 20.44 |
|       |                  | 1882.5 (26365) | 20.36 | 20.35 |
|       |                  | 1852.5 (26065) | 20.41 | 20.37 |
| 10MHz | 1RB-High (49)    | 1910 (26640)   | 20.43 | 20.69 |
|       |                  | 1882.5 (26365) | 20.38 | 20.70 |
|       |                  | 1855 (26090)   | 20.36 | 20.78 |
|       | 1RB-Middle (24)  | 1910 (26640)   | 20.53 | 20.80 |
|       |                  | 1882.5 (26365) | 20.45 | 20.85 |
|       |                  | 1855 (26090)   | 20.48 | 20.86 |
|       | 1RB-Low (0)      | 1910 (26640)   | 20.43 | 20.77 |
|       |                  | 1882.5 (26365) | 20.38 | 20.81 |
|       |                  | 1855 (26090)   | 20.42 | 20.67 |
|       | 25RB-High (25)   | 1910 (26640)   | 20.32 | 20.40 |
|       |                  | 1882.5 (26365) | 20.42 | 20.47 |
|       |                  | 1855 (26090)   | 20.47 | 20.49 |
|       | 25RB-Middle (12) | 1910 (26640)   | 20.47 | 20.52 |
|       |                  | 1882.5 (26365) | 20.42 | 20.47 |
|       |                  | 1855 (26090)   | 20.43 | 20.46 |
|       | 25RB-Low (0)     | 1910 (26640)   | 20.53 | 20.59 |
|       |                  | 1882.5 (26365) | 20.46 | 20.48 |
|       |                  | 1855 (26090)   | 20.37 | 20.44 |
|       | 50RB (0)         | 1910 (26640)   | 20.43 | 20.48 |
|       |                  | 1882.5 (26365) | 20.46 | 20.52 |
|       |                  | 1855 (26090)   | 20.41 | 20.45 |

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 15MHz | 1RB-High (74)    | 1907.5 (26615) | 20.45 | 20.73 |
|       |                  | 1882.5 (26365) | 20.35 | 20.61 |
|       |                  | 1857.5 (26115) | 20.33 | 20.56 |
|       | 1RB-Middle (37)  | 1907.5 (26615) | 20.49 | 20.86 |
|       |                  | 1882.5 (26365) | 20.43 | 20.83 |
|       |                  | 1857.5 (26115) | 20.42 | 20.80 |
|       | 1RB-Low (0)      | 1907.5 (26615) | 20.46 | 20.83 |
|       |                  | 1882.5 (26365) | 20.36 | 20.78 |
|       |                  | 1857.5 (26115) | 20.38 | 20.68 |
|       | 36RB-High (38)   | 1907.5 (26615) | 20.45 | 20.43 |
|       |                  | 1882.5 (26365) | 20.47 | 20.47 |
|       |                  | 1857.5 (26115) | 20.41 | 20.45 |
|       | 36RB-Middle (19) | 1907.5 (26615) | 20.54 | 20.52 |
|       |                  | 1882.5 (26365) | 20.49 | 20.49 |
|       |                  | 1857.5 (26115) | 20.46 | 20.46 |
|       | 36RB-Low (0)     | 1907.5 (26615) | 20.52 | 20.50 |
|       |                  | 1882.5 (26365) | 20.45 | 20.48 |
|       |                  | 1857.5 (26115) | 20.42 | 20.42 |
|       | 75RB (0)         | 1907.5 (26615) | 20.45 | 20.45 |
|       |                  | 1882.5 (26365) | 20.48 | 20.50 |
|       |                  | 1857.5 (26115) | 20.42 | 20.45 |
|       |                  |                |       |       |
| 20MHz | 1RB-High (99)    | 1905 (26590)   | 20.33 | 20.63 |
|       |                  | 1882.5 (26365) | 20.29 | 20.61 |
|       |                  | 1860 (26140)   | 20.28 | 20.68 |
|       | 1RB-Middle (50)  | 1905 (26590)   | 20.61 | 20.68 |
|       |                  | 1882.5 (26365) | 20.48 | 20.73 |
|       |                  | 1860 (26140)   | 20.49 | 20.68 |
|       | 1RB-Low (0)      | 1905 (26590)   | 20.32 | 20.73 |
|       |                  | 1882.5 (26365) | 20.29 | 20.68 |
|       |                  | 1860 (26140)   | 20.32 | 20.64 |
|       | 50RB-High (50)   | 1905 (26590)   | 20.29 | 20.36 |
|       |                  | 1882.5 (26365) | 20.42 | 20.44 |
|       |                  | 1860 (26140)   | 20.38 | 20.43 |
|       | 50RB-Middle (25) | 1905 (26590)   | 20.50 | 20.56 |
|       |                  | 1882.5 (26365) | 20.47 | 20.53 |
|       |                  | 1860 (26140)   | 20.45 | 20.48 |
|       | 50RB-Low (0)     | 1905 (26590)   | 20.46 | 20.53 |
|       |                  | 1882.5 (26365) | 20.44 | 20.50 |
|       |                  | 1860 (26140)   | 20.35 | 20.39 |
|       | 100RB (0)        | 1905 (26590)   | 20.39 | 20.45 |
|       |                  | 1882.5 (26365) | 20.44 | 20.46 |
|       |                  | 1860 (26140)   | 20.36 | 20.41 |

**LTE Band26(DSI1)**

|        |                |               |       |       |
|--------|----------------|---------------|-------|-------|
| 1.4MHz | 1RB-High (5)   | 848.3 (27033) | 23.62 | 22.83 |
|        |                | 831.5 (26865) | 23.55 | 22.77 |
|        |                | 814.7 (26697) | 23.61 | 22.89 |
|        | 1RB-Middle (3) | 848.3 (27033) | 23.76 | 22.86 |
|        |                | 831.5 (26865) | 23.65 | 22.94 |
|        |                | 814.7 (26697) | 23.77 | 22.92 |
|        | 1RB-Low (0)    | 848.3 (27033) | 23.62 | 22.81 |
|        |                | 831.5 (26865) | 23.54 | 22.77 |
|        |                | 814.7 (26697) | 23.66 | 22.81 |
|        | 3RB-High (3)   | 848.3 (27033) | 23.74 | 22.58 |
|        |                | 831.5 (26865) | 23.64 | 22.64 |
|        |                | 814.7 (26697) | 23.73 | 22.58 |
|        | 3RB-Middle (1) | 848.3 (27033) | 23.76 | 22.66 |
|        |                | 831.5 (26865) | 23.71 | 22.72 |
|        |                | 814.7 (26697) | 23.80 | 22.76 |
|        | 3RB-Low (0)    | 848.3 (27033) | 23.73 | 22.58 |
|        |                | 831.5 (26865) | 23.67 | 22.66 |
|        |                | 814.7 (26697) | 23.73 | 22.69 |
|        | 6RB (0)        | 848.3 (27033) | 22.77 | 21.85 |
|        |                | 831.5 (26865) | 22.74 | 21.78 |
|        |                | 814.7 (26697) | 22.81 | 21.86 |
|        |                |               |       |       |
| 3MHz   | 1RB-High (14)  | 847.5 (27025) | 23.68 | 22.75 |
|        |                | 831.5 (26865) | 23.67 | 22.87 |
|        |                | 815.5 (26705) | 23.64 | 22.19 |
|        | 1RB-Middle (7) | 847.5 (27025) | 23.89 | 22.99 |
|        |                | 831.5 (26865) | 23.79 | 23.12 |
|        |                | 815.5 (26705) | 23.05 | 22.44 |
|        | 1RB-Low (0)    | 847.5 (27025) | 23.71 | 22.84 |
|        |                | 831.5 (26865) | 23.63 | 22.89 |
|        |                | 815.5 (26705) | 23.09 | 22.24 |
|        | 8RB-High (7)   | 847.5 (27025) | 22.72 | 21.80 |
|        |                | 831.5 (26865) | 22.75 | 21.79 |
|        |                | 815.5 (26705) | 23.03 | 21.69 |
|        | 8RB-Middle (4) | 847.5 (27025) | 22.79 | 21.87 |
|        |                | 831.5 (26865) | 22.73 | 21.78 |
|        |                | 815.5 (26705) | 22.63 | 21.06 |
|        | 8RB-Low (0)    | 847.5 (27025) | 22.76 | 21.85 |
|        |                | 831.5 (26865) | 22.72 | 21.80 |
|        |                | 815.5 (26705) | 22.83 | 21.86 |
|        | 15RB (0)       | 847.5 (27025) | 22.77 | 21.80 |
|        |                | 831.5 (26865) | 22.77 | 21.77 |
|        |                | 815.5 (26705) | 22.67 | 21.63 |

|       |                  |               |       |       |
|-------|------------------|---------------|-------|-------|
| 5MHz  | 1RB-High (24)    | 846.5 (27015) | 23.64 | 22.76 |
|       |                  | 831.5 (26865) | 23.57 | 22.90 |
|       |                  | 816.5 (26715) | 23.59 | 22.88 |
|       | 1RB-Middle (12)  | 846.5 (27015) | 23.97 | 23.17 |
|       |                  | 831.5 (26865) | 23.84 | 23.15 |
|       |                  | 816.5 (26715) | 23.92 | 23.08 |
|       | 1RB-Low (0)      | 846.5 (27015) | 23.63 | 22.90 |
|       |                  | 831.5 (26865) | 23.58 | 22.87 |
|       |                  | 816.5 (26715) | 23.71 | 22.89 |
|       | 12RB-High (13)   | 846.5 (27015) | 22.76 | 21.74 |
|       |                  | 831.5 (26865) | 22.81 | 21.78 |
|       |                  | 816.5 (26715) | 22.83 | 21.82 |
|       | 12RB-Middle (6)  | 846.5 (27015) | 22.88 | 21.86 |
|       |                  | 831.5 (26865) | 22.83 | 21.79 |
|       |                  | 816.5 (26715) | 22.87 | 21.85 |
|       | 12RB-Low (0)     | 846.5 (27015) | 22.84 | 21.79 |
|       |                  | 831.5 (26865) | 22.74 | 21.71 |
|       |                  | 816.5 (26715) | 22.85 | 21.80 |
|       | 25RB (0)         | 846.5 (27015) | 22.82 | 21.84 |
|       |                  | 831.5 (26865) | 22.81 | 21.78 |
|       |                  | 816.5 (26715) | 22.89 | 21.86 |
| 10MHz | 1RB-High (49)    | 844 (26990)   | 23.78 | 22.95 |
|       |                  | 831.5 (26865) | 23.73 | 23.04 |
|       |                  | 820 (26750)   | 23.73 | 23.04 |
|       | 1RB-Middle (24)  | 844 (26990)   | 23.88 | 23.22 |
|       |                  | 831.5 (26865) | 23.83 | 23.10 |
|       |                  | 820 (26750)   | 23.90 | 23.19 |
|       | 1RB-Low (0)      | 844 (26990)   | 23.81 | 23.03 |
|       |                  | 831.5 (26865) | 23.77 | 23.06 |
|       |                  | 820 (26750)   | 23.79 | 23.06 |
|       | 25RB-High (25)   | 844 (26990)   | 22.96 | 21.91 |
|       |                  | 831.5 (26865) | 22.91 | 21.86 |
|       |                  | 820 (26750)   | 22.94 | 21.92 |
|       | 25RB-Middle (12) | 844 (26990)   | 22.94 | 21.93 |
|       |                  | 831.5 (26865) | 22.86 | 21.84 |
|       |                  | 820 (26750)   | 22.92 | 21.90 |
|       | 25RB-Low (0)     | 844 (26990)   | 23.03 | 21.99 |
|       |                  | 831.5 (26865) | 22.84 | 21.82 |
|       |                  | 820 (26750)   | 22.90 | 21.86 |
|       | 50RB (0)         | 844 (26990)   | 22.98 | 21.95 |
|       |                  | 831.5 (26865) | 22.91 | 21.88 |
|       |                  | 820 (26750)   | 22.95 | 21.89 |

|       |                  |               |       |       |
|-------|------------------|---------------|-------|-------|
| 15MHz | 1RB-High (74)    | 841.5 (26965) | 23.85 | 22.95 |
|       |                  | 831.5 (26865) | 23.78 | 23.11 |
|       |                  | 822.5 (26775) | 23.76 | 23.01 |
|       | 1RB-Middle (37)  | 841.5 (26965) | 23.92 | 23.22 |
|       |                  | 831.5 (26865) | 23.83 | 23.02 |
|       |                  | 822.5 (26775) | 23.88 | 23.17 |
|       | 1RB-Low (0)      | 841.5 (26965) | 23.81 | 23.14 |
|       |                  | 831.5 (26865) | 23.82 | 23.16 |
|       |                  | 822.5 (26775) | 23.88 | 23.21 |
|       | 36RB-High (38)   | 841.5 (26965) | 23.04 | 22.01 |
|       |                  | 831.5 (26865) | 22.98 | 21.94 |
|       |                  | 822.5 (26775) | 22.97 | 21.92 |
|       | 36RB-Middle (19) | 841.5 (26965) | 23.03 | 22.01 |
|       |                  | 831.5 (26865) | 23.01 | 21.95 |
|       |                  | 822.5 (26775) | 23.02 | 21.98 |
|       | 36RB-Low (0)     | 841.5 (26965) | 23.07 | 22.03 |
|       |                  | 831.5 (26865) | 22.96 | 21.94 |
|       |                  | 822.5 (26775) | 23.01 | 21.96 |
|       | 75RB (0)         | 841.5 (26965) | 23.07 | 22.05 |
|       |                  | 831.5 (26865) | 22.96 | 21.94 |
|       |                  | 822.5 (26775) | 23.00 | 21.96 |

# LTE Band41 PC3(DSI1)

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 5MHz  | 1RB-High (24)    | 2687.5 (41565) | 22.77 | 21.84 |
|       |                  | 2640.3(41093)  | 22.61 | 21.73 |
|       |                  | 2593 (40620)   | 22.74 | 21.90 |
|       |                  | 2545.8(40148)  | 22.55 | 21.69 |
|       |                  | 2498.5 (39675) | 22.82 | 21.92 |
|       | 1RB-Middle (12)  | 2687.5 (41565) | 23.02 | 22.13 |
|       |                  | 2640.3(41093)  | 22.88 | 22.02 |
|       |                  | 2593 (40620)   | 23.00 | 22.18 |
|       |                  | 2545.8(40148)  | 22.89 | 21.99 |
|       |                  | 2498.5 (39675) | 23.18 | 22.29 |
|       | 1RB-Low (0)      | 2687.5 (41565) | 22.78 | 21.89 |
|       |                  | 2640.3(41093)  | 22.69 | 21.83 |
|       |                  | 2593 (40620)   | 22.77 | 21.93 |
|       |                  | 2545.8(40148)  | 22.61 | 21.76 |
|       |                  | 2498.5 (39675) | 22.79 | 21.91 |
|       | 12RB-High (13)   | 2687.5 (41565) | 21.82 | 20.85 |
|       |                  | 2640.3(41093)  | 21.73 | 20.77 |
|       |                  | 2593 (40620)   | 21.85 | 20.84 |
|       |                  | 2545.8(40148)  | 21.66 | 20.68 |
|       |                  | 2498.5 (39675) | 21.88 | 20.91 |
|       | 12RB-Middle (6)  | 2687.5 (41565) | 21.88 | 20.89 |
|       |                  | 2640.3(41093)  | 21.79 | 20.78 |
|       |                  | 2593 (40620)   | 21.91 | 20.91 |
|       |                  | 2545.8(40148)  | 21.71 | 20.74 |
|       |                  | 2498.5 (39675) | 21.96 | 20.97 |
|       | 12RB-Low (0)     | 2687.5 (41565) | 21.83 | 20.86 |
|       |                  | 2640.3(41093)  | 21.75 | 20.79 |
|       |                  | 2593 (40620)   | 21.86 | 20.88 |
|       |                  | 2545.8(40148)  | 21.66 | 20.70 |
|       |                  | 2498.5 (39675) | 21.86 | 20.88 |
|       | 25RB (0)         | 2687.5 (41565) | 21.83 | 20.88 |
|       |                  | 2640.3(41093)  | 21.79 | 20.82 |
|       |                  | 2593 (40620)   | 21.85 | 20.93 |
|       |                  | 2545.8(40148)  | 21.73 | 20.77 |
|       |                  | 2498.5 (39675) | 21.93 | 20.99 |
| 10MHz | 1RB-High (49)    | 2685 (41540)   | 22.82 | 21.95 |
|       |                  | 2639(41080)    | 22.68 | 21.81 |
|       |                  | 2593 (40620)   | 22.82 | 21.97 |
|       |                  | 2547(40160)    | 22.64 | 21.79 |
|       |                  | 2501 (39700)   | 22.85 | 22.00 |
|       | 1RB-Middle (24)  | 2685 (41540)   | 22.91 | 22.08 |
|       |                  | 2639(41080)    | 22.84 | 22.00 |
|       |                  | 2593 (40620)   | 22.92 | 22.16 |
|       |                  | 2547(40160)    | 22.73 | 21.88 |
|       |                  | 2501 (39700)   | 22.91 | 22.08 |
|       | 1RB-Low (0)      | 2685 (41540)   | 22.86 | 22.01 |
|       |                  | 2639(41080)    | 22.78 | 21.96 |
|       |                  | 2593 (40620)   | 22.86 | 22.04 |
|       |                  | 2547(40160)    | 22.73 | 21.86 |
|       |                  | 2501 (39700)   | 22.86 | 22.02 |
|       | 25RB-High (25)   | 2685 (41540)   | 21.87 | 20.95 |
|       |                  | 2639(41080)    | 21.71 | 20.84 |
|       |                  | 2593 (40620)   | 21.84 | 20.94 |
|       |                  | 2547(40160)    | 21.71 | 20.78 |
|       |                  | 2501 (39700)   | 21.88 | 20.99 |
|       | 25RB-Middle (12) | 2685 (41540)   | 21.94 | 20.98 |
|       |                  | 2639(41080)    | 21.83 | 20.90 |
|       |                  | 2593 (40620)   | 21.99 | 20.99 |
|       |                  | 2547(40160)    | 21.72 | 20.79 |
|       |                  | 2501 (39700)   | 21.95 | 21.02 |
|       | 25RB-Low (0)     | 2685 (41540)   | 21.92 | 21.01 |
|       |                  | 2639(41080)    | 21.86 | 20.94 |
|       |                  | 2593 (40620)   | 21.94 | 21.03 |
|       |                  | 2547(40160)    | 21.74 | 20.88 |
|       |                  | 2501 (39700)   | 22.02 | 21.00 |
|       | 50RB (0)         | 2685 (41540)   | 21.93 | 21.06 |
|       |                  | 2639(41080)    | 21.87 | 21.07 |
|       |                  | 2593 (40620)   | 22.01 | 21.16 |
|       |                  | 2547(40160)    | 21.85 | 20.95 |
|       |                  | 2501 (39700)   | 22.00 | 21.15 |

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 15MHz | 1RB-High (74)    | 2682.5 (41515) | 22.75 | 21.87 |
|       |                  | 2637.8(41068)  | 22.55 | 21.72 |
|       |                  | 2593 (40620)   | 22.72 | 21.91 |
|       |                  | 2548.3(40173)  | 22.56 | 21.69 |
|       |                  | 2503.5 (39725) | 22.79 | 21.87 |
|       | 1RB-Middle (37)  | 2682.5 (41515) | 22.90 | 22.02 |
|       |                  | 2637.8(41068)  | 22.84 | 21.93 |
|       |                  | 2593 (40620)   | 22.88 | 22.05 |
|       |                  | 2548.3(40173)  | 22.71 | 21.85 |
|       |                  | 2503.5 (39725) | 22.92 | 22.05 |
|       | 1RB-Low (0)      | 2682.5 (41515) | 22.80 | 21.93 |
|       |                  | 2637.8(41068)  | 22.79 | 21.93 |
|       |                  | 2593 (40620)   | 22.81 | 21.96 |
|       |                  | 2548.3(40173)  | 22.63 | 21.80 |
|       |                  | 2503.5 (39725) | 22.79 | 21.94 |
|       | 36RB-High (38)   | 2682.5 (41515) | 21.90 | 20.90 |
|       |                  | 2637.8(41068)  | 21.73 | 20.73 |
|       |                  | 2593 (40620)   | 21.86 | 20.90 |
|       |                  | 2548.3(40173)  | 21.69 | 20.69 |
|       |                  | 2503.5 (39725) | 21.92 | 20.91 |
|       | 36RB-Middle (19) | 2682.5 (41515) | 21.88 | 20.90 |
|       |                  | 2637.8(41068)  | 21.82 | 20.86 |
|       |                  | 2593 (40620)   | 21.91 | 20.92 |
|       |                  | 2548.3(40173)  | 21.73 | 20.73 |
|       |                  | 2503.5 (39725) | 21.95 | 20.96 |
|       | 36RB-Low (0)     | 2682.5 (41515) | 21.88 | 20.81 |
|       |                  | 2637.8(41068)  | 21.81 | 20.82 |
|       |                  | 2593 (40620)   | 21.92 | 20.91 |
|       |                  | 2548.3(40173)  | 21.65 | 20.72 |
|       |                  | 2503.5 (39725) | 21.89 | 20.96 |
|       | 75RB (0)         | 2682.5 (41515) | 21.85 | 20.94 |
|       |                  | 2637.8(41068)  | 21.84 | 20.97 |
|       |                  | 2593 (40620)   | 21.95 | 21.01 |
|       |                  | 2548.3(40173)  | 21.72 | 20.81 |
|       |                  | 2503.5 (39725) | 21.95 | 21.00 |
| 20MHz | 1RB-High (99)    | 2680 (41490)   | 22.90 | 22.02 |
|       |                  | 2636.5(41055)  | 22.73 | 21.90 |
|       |                  | 2593 (40620)   | 22.90 | 22.07 |
|       |                  | 2549.5(40185)  | 22.67 | 21.87 |
|       |                  | 2506 (39750)   | 22.92 | 22.10 |
|       | 1RB-Middle (50)  | 2680 (41490)   | 23.18 | 22.28 |
|       |                  | 2636.5(41055)  | 23.15 | 22.26 |
|       |                  | 2593 (40620)   | 23.23 | 22.38 |
|       |                  | 2549.5(40185)  | 22.99 | 22.16 |
|       |                  | 2506 (39750)   | 23.24 | 22.32 |
|       | 1RB-Low (0)      | 2680 (41490)   | 22.95 | 22.11 |
|       |                  | 2636.5(41055)  | 23.00 | 22.14 |
|       |                  | 2593 (40620)   | 22.98 | 22.12 |
|       |                  | 2549.5(40185)  | 22.83 | 21.98 |
|       |                  | 2506 (39750)   | 22.97 | 22.12 |
|       | 50RB-High (50)   | 2680 (41490)   | 22.16 | 21.29 |
|       |                  | 2636.5(41055)  | 22.12 | 21.22 |
|       |                  | 2593 (40620)   | 22.16 | 21.29 |
|       |                  | 2549.5(40185)  | 21.94 | 21.07 |
|       |                  | 2506 (39750)   | 22.16 | 21.30 |
|       | 50RB-Middle (25) | 2680 (41490)   | 22.27 | 21.31 |
|       |                  | 2636.5(41055)  | 22.16 | 21.33 |
|       |                  | 2593 (40620)   | 22.22 | 21.40 |
|       |                  | 2549.5(40185)  | 21.97 | 21.17 |
|       |                  | 2506 (39750)   | 22.26 | 21.37 |
|       | 50RB-Low (0)     | 2680 (41490)   | 22.16 | 21.27 |
|       |                  | 2636.5(41055)  | 22.20 | 21.38 |
|       |                  | 2593 (40620)   | 22.26 | 21.37 |
|       |                  | 2549.5(40185)  | 22.05 | 21.15 |
|       |                  | 2506 (39750)   | 22.25 | 21.38 |
|       | 100RB (0)        | 2680 (41490)   | 22.14 | 21.23 |
|       |                  | 2636.5(41055)  | 22.06 | 21.20 |
|       |                  | 2593 (40620)   | 22.15 | 21.28 |
|       |                  | 2549.5(40185)  | 21.95 | 21.02 |
|       |                  | 2506 (39750)   | 22.18 | 21.29 |

### LTE Band41 PC3(DSI2)

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 5MHz  | 1RB-High (24)    | 2687.5 (41565) | 20.63 | 19.76 |
|       |                  | 2640.3(41093)  | 20.49 | 19.64 |
|       |                  | 2593 (40620)   | 20.64 | 19.76 |
|       |                  | 2545.8(40148)  | 20.42 | 19.56 |
|       |                  | 2498.5 (39675) | 20.67 | 19.82 |
|       | 1RB-Middle (12)  | 2687.5 (41565) | 20.82 | 19.90 |
|       |                  | 2640.3(41093)  | 20.80 | 19.93 |
|       |                  | 2593 (40620)   | 20.84 | 19.87 |
|       |                  | 2545.8(40148)  | 20.65 | 19.80 |
|       |                  | 2498.5 (39675) | 20.93 | 20.03 |
|       | 1RB-Low (0)      | 2687.5 (41565) | 20.64 | 19.76 |
|       |                  | 2640.3(41093)  | 20.57 | 19.75 |
|       |                  | 2593 (40620)   | 20.66 | 19.77 |
|       |                  | 2545.8(40148)  | 20.49 | 19.64 |
|       |                  | 2498.5 (39675) | 20.70 | 19.84 |
|       | 12RB-High (13)   | 2687.5 (41565) | 19.65 | 18.68 |
|       |                  | 2640.3(41093)  | 19.57 | 18.62 |
|       |                  | 2593 (40620)   | 19.65 | 18.65 |
|       |                  | 2545.8(40148)  | 19.47 | 18.45 |
|       |                  | 2498.5 (39675) | 19.72 | 18.70 |
|       | 12RB-Middle (6)  | 2687.5 (41565) | 19.78 | 18.75 |
|       |                  | 2640.3(41093)  | 19.70 | 18.73 |
|       |                  | 2593 (40620)   | 19.77 | 18.80 |
|       |                  | 2545.8(40148)  | 19.57 | 18.55 |
|       |                  | 2498.5 (39675) | 19.84 | 18.81 |
|       | 12RB-Low (0)     | 2687.5 (41565) | 19.70 | 18.70 |
|       |                  | 2640.3(41093)  | 19.65 | 18.68 |
|       |                  | 2593 (40620)   | 19.71 | 18.70 |
|       |                  | 2545.8(40148)  | 19.51 | 18.54 |
|       |                  | 2498.5 (39675) | 19.70 | 18.72 |
|       | 25RB (0)         | 2687.5 (41565) | 19.73 | 18.80 |
|       |                  | 2640.3(41093)  | 19.69 | 18.73 |
|       |                  | 2593 (40620)   | 19.72 | 18.81 |
|       |                  | 2545.8(40148)  | 19.54 | 18.61 |
|       |                  | 2498.5 (39675) | 19.74 | 18.83 |
| 10MHz | 1RB-High (49)    | 2685 (41540)   | 20.58 | 19.73 |
|       |                  | 2639(41080)    | 20.50 | 19.64 |
|       |                  | 2593 (40620)   | 20.54 | 19.67 |
|       |                  | 2547(40160)    | 20.59 | 19.76 |
|       |                  | 2501 (39700)   | 20.50 | 19.62 |
|       | 1RB-Middle (24)  | 2685 (41540)   | 20.84 | 19.95 |
|       |                  | 2639(41080)    | 20.74 | 19.89 |
|       |                  | 2593 (40620)   | 20.77 | 19.94 |
|       |                  | 2547(40160)    | 20.82 | 19.93 |
|       |                  | 2501 (39700)   | 20.72 | 19.87 |
|       | 1RB-Low (0)      | 2685 (41540)   | 20.71 | 19.85 |
|       |                  | 2639(41080)    | 20.56 | 19.72 |
|       |                  | 2593 (40620)   | 20.66 | 19.78 |
|       |                  | 2547(40160)    | 20.61 | 19.74 |
|       |                  | 2501 (39700)   | 20.55 | 19.69 |
|       | 25RB-High (25)   | 2685 (41540)   | 19.72 | 18.76 |
|       |                  | 2639(41080)    | 19.60 | 18.69 |
|       |                  | 2593 (40620)   | 19.60 | 18.70 |
|       |                  | 2547(40160)    | 19.68 | 18.74 |
|       |                  | 2501 (39700)   | 19.53 | 18.55 |
|       | 25RB-Middle (12) | 2685 (41540)   | 19.78 | 18.84 |
|       |                  | 2639(41080)    | 19.66 | 18.75 |
|       |                  | 2593 (40620)   | 19.73 | 18.80 |
|       |                  | 2547(40160)    | 19.74 | 18.82 |
|       |                  | 2501 (39700)   | 19.66 | 18.72 |
|       | 25RB-Low (0)     | 2685 (41540)   | 19.80 | 18.89 |
|       |                  | 2639(41080)    | 19.71 | 18.77 |
|       |                  | 2593 (40620)   | 19.79 | 18.85 |
|       |                  | 2547(40160)    | 19.72 | 18.84 |
|       |                  | 2501 (39700)   | 19.66 | 18.74 |
|       | 50RB (0)         | 2685 (41540)   | 19.78 | 18.89 |
|       |                  | 2639(41080)    | 19.72 | 18.80 |
|       |                  | 2593 (40620)   | 19.78 | 18.84 |
|       |                  | 2547(40160)    | 19.76 | 18.88 |
|       |                  | 2501 (39700)   | 19.66 | 18.71 |

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 15MHz | 1RB-High (74)    | 2682.5 (41515) | 20.40 | 19.53 |
|       |                  | 2637.8(41068)  | 20.31 | 19.47 |
|       |                  | 2593 (40620)   | 20.34 | 19.49 |
|       |                  | 2548.3(40173)  | 20.43 | 19.60 |
|       |                  | 2503.5 (39725) | 20.30 | 19.34 |
|       | 1RB-Middle (37)  | 2682.5 (41515) | 20.71 | 19.82 |
|       |                  | 2637.8(41068)  | 20.56 | 19.73 |
|       |                  | 2593 (40620)   | 20.65 | 19.79 |
|       |                  | 2548.3(40173)  | 20.63 | 19.81 |
|       |                  | 2503.5 (39725) | 20.54 | 19.69 |
|       | 1RB-Low (0)      | 2682.5 (41515) | 20.57 | 19.69 |
|       |                  | 2637.8(41068)  | 20.39 | 19.56 |
|       |                  | 2593 (40620)   | 20.55 | 19.67 |
|       |                  | 2548.3(40173)  | 20.43 | 19.27 |
|       |                  | 2503.5 (39725) | 20.39 | 19.52 |
|       | 36RB-High (38)   | 2682.5 (41515) | 19.60 | 18.63 |
|       |                  | 2637.8(41068)  | 19.44 | 18.49 |
|       |                  | 2593 (40620)   | 19.48 | 18.53 |
|       |                  | 2548.3(40173)  | 19.53 | 18.54 |
|       |                  | 2503.5 (39725) | 19.41 | 18.39 |
|       | 36RB-Middle (19) | 2682.5 (41515) | 19.71 | 18.70 |
|       |                  | 2637.8(41068)  | 19.59 | 18.61 |
|       |                  | 2593 (40620)   | 19.63 | 18.61 |
|       |                  | 2548.3(40173)  | 19.66 | 18.62 |
|       |                  | 2503.5 (39725) | 19.53 | 18.48 |
|       | 36RB-Low (0)     | 2682.5 (41515) | 19.68 | 18.70 |
|       |                  | 2637.8(41068)  | 19.52 | 18.60 |
|       |                  | 2593 (40620)   | 19.66 | 18.61 |
|       |                  | 2548.3(40173)  | 19.62 | 18.64 |
|       |                  | 2503.5 (39725) | 19.49 | 18.54 |
|       | 75RB (0)         | 2682.5 (41515) | 19.67 | 18.74 |
|       |                  | 2637.8(41068)  | 19.63 | 18.66 |
|       |                  | 2593 (40620)   | 19.62 | 18.69 |
|       |                  | 2548.3(40173)  | 19.64 | 18.67 |
|       |                  | 2503.5 (39725) | 19.52 | 18.53 |
| 20MHz | 1RB-High (99)    | 2680 (41490)   | 20.38 | 19.48 |
|       |                  | 2636.5(41055)  | 20.23 | 19.36 |
|       |                  | 2593 (40620)   | 20.39 | 19.52 |
|       |                  | 2549.5(40185)  | 20.18 | 19.36 |
|       |                  | 2506 (39750)   | 20.45 | 19.12 |
|       | 1RB-Middle (50)  | 2680 (41490)   | 20.84 | 19.90 |
|       |                  | 2636.5(41055)  | 20.71 | 19.87 |
|       |                  | 2593 (40620)   | 20.81 | 19.97 |
|       |                  | 2549.5(40185)  | 20.62 | 19.14 |
|       |                  | 2506 (39750)   | 20.86 | 19.99 |
|       | 1RB-Low (0)      | 2680 (41490)   | 20.46 | 19.57 |
|       |                  | 2636.5(41055)  | 20.49 | 19.63 |
|       |                  | 2593 (40620)   | 20.45 | 19.59 |
|       |                  | 2549.5(40185)  | 20.29 | 19.13 |
|       |                  | 2506 (39750)   | 20.44 | 19.59 |
|       | 50RB-High (50)   | 2680 (41490)   | 19.84 | 18.72 |
|       |                  | 2636.5(41055)  | 19.54 | 18.69 |
|       |                  | 2593 (40620)   | 19.65 | 18.74 |
|       |                  | 2549.5(40185)  | 19.40 | 18.48 |
|       |                  | 2506 (39750)   | 19.66 | 18.72 |
|       | 50RB-Middle (25) | 2680 (41490)   | 19.73 | 18.87 |
|       |                  | 2636.5(41055)  | 19.76 | 18.86 |
|       |                  | 2593 (40620)   | 19.81 | 18.91 |
|       |                  | 2549.5(40185)  | 19.59 | 18.64 |
|       |                  | 2506 (39750)   | 19.81 | 18.89 |
|       | 50RB-Low (0)     | 2680 (41490)   | 19.76 | 18.86 |
|       |                  | 2636.5(41055)  | 19.81 | 18.97 |
|       |                  | 2593 (40620)   | 19.82 | 18.92 |
|       |                  | 2549.5(40185)  | 19.60 | 18.68 |
|       |                  | 2506 (39750)   | 19.83 | 18.90 |
|       | 100RB (0)        | 2680 (41490)   | 19.67 | 18.77 |
|       |                  | 2636.5(41055)  | 19.61 | 18.71 |
|       |                  | 2593 (40620)   | 19.66 | 18.71 |
|       |                  | 2549.5(40185)  | 19.45 | 18.55 |
|       |                  | 2506 (39750)   | 19.70 | 18.79 |

### LTE Band41 PC3(DSI3)

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 5MHz  | 1RB-High (24)    | 2687.5 (41565) | 18.92 | 19.07 |
|       |                  | 2640.3(41093)  | 18.79 | 18.93 |
|       |                  | 2593 (40620)   | 18.95 | 19.10 |
|       |                  | 2545.8(40148)  | 18.75 | 18.91 |
|       |                  | 2498.5 (39675) | 19.02 | 19.17 |
|       | 1RB-Middle (12)  | 2687.5 (41565) | 19.17 | 19.26 |
|       |                  | 2640.3(41093)  | 19.12 | 19.37 |
|       |                  | 2593 (40620)   | 19.25 | 19.37 |
|       |                  | 2545.8(40148)  | 18.99 | 19.11 |
|       |                  | 2498.5 (39675) | 19.26 | 19.42 |
|       | 1RB-Low (0)      | 2687.5 (41565) | 18.94 | 19.08 |
|       |                  | 2640.3(41093)  | 18.88 | 19.03 |
|       |                  | 2593 (40620)   | 18.96 | 19.11 |
|       |                  | 2545.8(40148)  | 18.79 | 18.94 |
|       |                  | 2498.5 (39675) | 19.04 | 19.16 |
|       | 12RB-High (13)   | 2687.5 (41565) | 18.97 | 18.97 |
|       |                  | 2640.3(41093)  | 18.93 | 18.88 |
|       |                  | 2593 (40620)   | 19.01 | 19.02 |
|       |                  | 2545.8(40148)  | 18.83 | 18.77 |
|       |                  | 2498.5 (39675) | 19.08 | 19.07 |
|       | 12RB-Middle (6)  | 2687.5 (41565) | 19.10 | 19.01 |
|       |                  | 2640.3(41093)  | 19.00 | 18.96 |
|       |                  | 2593 (40620)   | 19.11 | 19.11 |
|       |                  | 2545.8(40148)  | 18.93 | 18.87 |
|       |                  | 2498.5 (39675) | 19.14 | 19.09 |
|       | 12RB-Low (0)     | 2687.5 (41565) | 18.96 | 18.96 |
|       |                  | 2640.3(41093)  | 18.96 | 18.91 |
|       |                  | 2593 (40620)   | 19.04 | 19.01 |
|       |                  | 2545.8(40148)  | 18.85 | 18.81 |
|       |                  | 2498.5 (39675) | 19.05 | 19.02 |
|       | 25RB (0)         | 2687.5 (41565) | 19.07 | 19.06 |
|       |                  | 2640.3(41093)  | 18.93 | 18.98 |
|       |                  | 2593 (40620)   | 19.09 | 19.13 |
|       |                  | 2545.8(40148)  | 18.89 | 18.92 |
|       |                  | 2498.5 (39675) | 19.09 | 19.15 |
| 10MHz | 1RB-High (49)    | 2685 (41540)   | 18.99 | 19.15 |
|       |                  | 2639(41080)    | 18.88 | 19.05 |
|       |                  | 2593 (40620)   | 19.03 | 19.19 |
|       |                  | 2547(40160)    | 18.84 | 18.99 |
|       |                  | 2501 (39700)   | 19.08 | 19.24 |
|       | 1RB-Middle (24)  | 2685 (41540)   | 19.13 | 19.28 |
|       |                  | 2639(41080)    | 19.04 | 19.15 |
|       |                  | 2593 (40620)   | 19.16 | 19.34 |
|       |                  | 2547(40160)    | 18.98 | 19.17 |
|       |                  | 2501 (39700)   | 19.20 | 19.37 |
|       | 1RB-Low (0)      | 2685 (41540)   | 19.06 | 19.22 |
|       |                  | 2639(41080)    | 19.01 | 19.20 |
|       |                  | 2593 (40620)   | 19.06 | 19.22 |
|       |                  | 2547(40160)    | 18.89 | 19.07 |
|       |                  | 2501 (39700)   | 19.09 | 19.24 |
|       | 25RB-High (25)   | 2685 (41540)   | 19.09 | 19.10 |
|       |                  | 2639(41080)    | 18.94 | 19.05 |
|       |                  | 2593 (40620)   | 19.12 | 19.17 |
|       |                  | 2547(40160)    | 18.88 | 18.94 |
|       |                  | 2501 (39700)   | 19.12 | 19.19 |
|       | 25RB-Middle (12) | 2685 (41540)   | 19.15 | 19.18 |
|       |                  | 2639(41080)    | 19.00 | 19.02 |
|       |                  | 2593 (40620)   | 19.10 | 19.20 |
|       |                  | 2547(40160)    | 18.93 | 18.99 |
|       |                  | 2501 (39700)   | 19.15 | 19.23 |
|       | 25RB-Low (0)     | 2685 (41540)   | 19.12 | 19.16 |
|       |                  | 2639(41080)    | 19.04 | 19.06 |
|       |                  | 2593 (40620)   | 19.16 | 19.18 |
|       |                  | 2547(40160)    | 18.98 | 19.02 |
|       |                  | 2501 (39700)   | 19.15 | 19.23 |
|       | 50RB (0)         | 2685 (41540)   | 19.14 | 19.21 |
|       |                  | 2639(41080)    | 19.11 | 19.20 |
|       |                  | 2593 (40620)   | 19.21 | 19.25 |
|       |                  | 2547(40160)    | 18.98 | 19.07 |
|       |                  | 2501 (39700)   | 19.20 | 19.29 |

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 15MHz | 1RB-High (74)    | 2682.5 (41515) | 18.89 | 19.01 |
|       |                  | 2637.8(41068)  | 18.75 | 18.91 |
|       |                  | 2593 (40620)   | 18.94 | 19.10 |
|       |                  | 2548.3(40173)  | 18.70 | 18.89 |
|       |                  | 2503.5 (39725) | 18.94 | 19.13 |
|       | 1RB-Middle (37)  | 2682.5 (41515) | 19.06 | 19.19 |
|       |                  | 2637.8(41068)  | 18.97 | 19.13 |
|       |                  | 2593 (40620)   | 19.08 | 19.21 |
|       |                  | 2548.3(40173)  | 18.89 | 19.02 |
|       |                  | 2503.5 (39725) | 19.08 | 19.25 |
|       | 1RB-Low (0)      | 2682.5 (41515) | 18.96 | 19.06 |
|       |                  | 2637.8(41068)  | 18.98 | 19.10 |
|       |                  | 2593 (40620)   | 19.01 | 19.11 |
|       |                  | 2548.3(40173)  | 18.81 | 18.96 |
|       |                  | 2503.5 (39725) | 18.98 | 19.16 |
|       | 36RB-High (38)   | 2682.5 (41515) | 19.02 | 19.01 |
|       |                  | 2637.8(41068)  | 18.96 | 18.92 |
|       |                  | 2593 (40620)   | 19.02 | 18.95 |
|       |                  | 2548.3(40173)  | 18.87 | 18.82 |
|       |                  | 2503.5 (39725) | 19.03 | 19.09 |
|       | 36RB-Middle (19) | 2682.5 (41515) | 19.09 | 18.95 |
|       |                  | 2637.8(41068)  | 19.03 | 18.96 |
|       |                  | 2593 (40620)   | 19.12 | 18.96 |
|       |                  | 2548.3(40173)  | 18.85 | 18.89 |
|       |                  | 2503.5 (39725) | 19.08 | 19.12 |
|       | 36RB-Low (0)     | 2682.5 (41515) | 18.99 | 18.98 |
|       |                  | 2637.8(41068)  | 18.89 | 18.96 |
|       |                  | 2593 (40620)   | 19.04 | 19.07 |
|       |                  | 2548.3(40173)  | 18.89 | 18.84 |
|       |                  | 2503.5 (39725) | 19.08 | 19.04 |
|       | 75RB (0)         | 2682.5 (41515) | 19.07 | 19.08 |
|       |                  | 2637.8(41068)  | 19.01 | 19.06 |
|       |                  | 2593 (40620)   | 19.10 | 19.15 |
|       |                  | 2548.3(40173)  | 18.89 | 18.91 |
|       |                  | 2503.5 (39725) | 19.13 | 19.14 |
| 20MHz | 1RB-High (99)    | 2680 (41490)   | 18.91 | 19.08 |
|       |                  | 2636.5(41055)  | 18.80 | 18.96 |
|       |                  | 2593 (40620)   | 18.95 | 19.11 |
|       |                  | 2549.5(40185)  | 18.75 | 18.91 |
|       |                  | 2506 (39750)   | 18.96 | 19.14 |
|       | 1RB-Middle (50)  | 2680 (41490)   | 19.23 | 19.34 |
|       |                  | 2636.5(41055)  | 19.17 | 19.35 |
|       |                  | 2593 (40620)   | 19.26 | 19.42 |
|       |                  | 2549.5(40185)  | 19.05 | 19.26 |
|       |                  | 2506 (39750)   | 19.29 | 19.42 |
|       | 1RB-Low (0)      | 2680 (41490)   | 18.99 | 19.13 |
|       |                  | 2636.5(41055)  | 19.01 | 19.19 |
|       |                  | 2593 (40620)   | 19.00 | 19.19 |
|       |                  | 2549.5(40185)  | 18.86 | 19.03 |
|       |                  | 2506 (39750)   | 19.01 | 19.16 |
|       | 50RB-High (50)   | 2680 (41490)   | 19.29 | 19.22 |
|       |                  | 2636.5(41055)  | 19.10 | 19.20 |
|       |                  | 2593 (40620)   | 19.20 | 19.24 |
|       |                  | 2549.5(40185)  | 19.02 | 18.99 |
|       |                  | 2506 (39750)   | 19.20 | 19.23 |
|       | 50RB-Middle (25) | 2680 (41490)   | 19.23 | 19.26 |
|       |                  | 2636.5(41055)  | 19.20 | 19.28 |
|       |                  | 2593 (40620)   | 19.26 | 19.34 |
|       |                  | 2549.5(40185)  | 19.06 | 19.10 |
|       |                  | 2506 (39750)   | 19.28 | 19.34 |
|       | 50RB-Low (0)     | 2680 (41490)   | 19.17 | 19.25 |
|       |                  | 2636.5(41055)  | 19.28 | 19.34 |
|       |                  | 2593 (40620)   | 19.27 | 19.31 |
|       |                  | 2549.5(40185)  | 19.07 | 19.08 |
|       |                  | 2506 (39750)   | 19.25 | 19.30 |
|       | 100RB (0)        | 2680 (41490)   | 19.11 | 19.18 |
|       |                  | 2636.5(41055)  | 19.15 | 19.22 |
|       |                  | 2593 (40620)   | 19.21 | 19.19 |
|       |                  | 2549.5(40185)  | 18.94 | 18.97 |
|       |                  | 2506 (39750)   | 19.22 | 19.24 |

### LTE Band41 PC2(DSI1)

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 5MHz  | 1RB-High (24)    | 2687.5 (41565) | 25.87 | 25.10 |
|       |                  | 2640.3(41093)  | 25.70 | 24.89 |
|       |                  | 2593 (40620)   | 25.88 | 25.08 |
|       |                  | 2545.8(40148)  | 25.72 | 24.95 |
|       | 1RB-Middle (12)  | 2498.5 (39675) | 25.96 | 25.12 |
|       |                  | 2687.5 (41565) | 26.02 | 25.25 |
|       |                  | 2640.3(41093)  | 25.89 | 25.07 |
|       |                  | 2593 (40620)   | 26.03 | 25.19 |
|       | 1RB-Low (0)      | 2545.8(40148)  | 25.88 | 25.07 |
|       |                  | 2498.5 (39675) | 26.09 | 25.23 |
|       |                  | 2687.5 (41565) | 25.89 | 25.12 |
|       |                  | 2640.3(41093)  | 25.79 | 24.96 |
|       | 12RB-High (13)   | 2593 (40620)   | 25.90 | 25.10 |
|       |                  | 2545.8(40148)  | 25.75 | 24.98 |
|       |                  | 2498.5 (39675) | 25.96 | 25.12 |
|       |                  | 2687.5 (41565) | 24.99 | 24.06 |
|       | 12RB-Middle (6)  | 2640.3(41093)  | 24.86 | 23.97 |
|       |                  | 2593 (40620)   | 25.01 | 24.09 |
|       |                  | 2545.8(40148)  | 24.83 | 23.93 |
|       |                  | 2498.5 (39675) | 25.09 | 24.13 |
|       | 12RB-Low (0)     | 2687.5 (41565) | 25.05 | 24.13 |
|       |                  | 2640.3(41093)  | 24.94 | 24.07 |
|       |                  | 2593 (40620)   | 25.10 | 24.17 |
|       |                  | 2545.8(40148)  | 24.91 | 23.98 |
|       | 25RB (0)         | 2498.5 (39675) | 25.14 | 24.19 |
|       |                  | 2687.5 (41565) | 24.98 | 24.06 |
|       |                  | 2640.3(41093)  | 24.90 | 23.99 |
|       |                  | 2593 (40620)   | 25.02 | 24.10 |
| 10MHz | 1RB-High (49)    | 2545.8(40148)  | 24.83 | 23.92 |
|       |                  | 2498.5 (39675) | 25.04 | 24.12 |
|       |                  | 2687.5 (41565) | 25.00 | 24.11 |
|       |                  | 2640.3(41093)  | 24.89 | 24.01 |
|       | 1RB-Middle (24)  | 2593 (40620)   | 25.02 | 24.14 |
|       |                  | 2545.8(40148)  | 24.85 | 24.00 |
|       |                  | 2498.5 (39675) | 25.04 | 24.17 |
|       |                  | 2687.5 (41565) | 25.87 | 25.10 |
|       | 1RB-Low (0)      | 2640.3(41093)  | 25.70 | 24.89 |
|       |                  | 2593 (40620)   | 25.88 | 25.08 |
|       |                  | 2545.8(40148)  | 25.72 | 24.95 |
|       |                  | 2498.5 (39675) | 25.96 | 25.12 |
|       | 25RB-High (25)   | 2687.5 (41565) | 26.02 | 25.25 |
|       |                  | 2640.3(41093)  | 25.89 | 25.07 |
|       |                  | 2593 (40620)   | 26.03 | 25.19 |
|       |                  | 2545.8(40148)  | 25.88 | 25.07 |
|       | 25RB-Middle (12) | 2498.5 (39675) | 26.09 | 25.23 |
|       |                  | 2687.5 (41565) | 25.89 | 25.12 |
|       |                  | 2640.3(41093)  | 25.79 | 24.96 |
|       |                  | 2593 (40620)   | 25.90 | 25.10 |
|       | 25RB-Low (0)     | 2545.8(40148)  | 25.75 | 24.98 |
|       |                  | 2498.5 (39675) | 25.96 | 25.12 |
|       |                  | 2687.5 (41565) | 24.99 | 24.06 |
|       |                  | 2640.3(41093)  | 24.86 | 23.97 |
|       | 50RB (0)         | 2593 (40620)   | 25.01 | 24.09 |
|       |                  | 2545.8(40148)  | 24.83 | 23.93 |
|       |                  | 2498.5 (39675) | 25.09 | 24.13 |
|       |                  | 2687.5 (41565) | 25.05 | 24.13 |
|       | 1RB-High (49)    | 2640.3(41093)  | 24.94 | 24.07 |
|       |                  | 2593 (40620)   | 25.10 | 24.17 |
|       |                  | 2545.8(40148)  | 24.91 | 23.98 |
|       |                  | 2498.5 (39675) | 25.14 | 24.19 |
|       | 1RB-Middle (24)  | 2687.5 (41565) | 24.98 | 24.06 |
|       |                  | 2640.3(41093)  | 24.90 | 23.99 |
|       |                  | 2593 (40620)   | 25.02 | 24.10 |
|       |                  | 2545.8(40148)  | 24.83 | 23.92 |
|       | 1RB-Low (0)      | 2498.5 (39675) | 25.04 | 24.12 |
|       |                  | 2687.5 (41565) | 25.87 | 25.10 |
|       |                  | 2640.3(41093)  | 25.70 | 24.89 |
|       |                  | 2593 (40620)   | 25.88 | 25.08 |
|       | 25RB-High (25)   | 2545.8(40148)  | 25.72 | 24.95 |
|       |                  | 2498.5 (39675) | 25.96 | 25.12 |
|       |                  | 2687.5 (41565) | 26.02 | 25.25 |
|       |                  | 2640.3(41093)  | 25.89 | 25.07 |
|       | 25RB-Middle (12) | 2593 (40620)   | 26.03 | 25.19 |
|       |                  | 2545.8(40148)  | 25.88 | 25.07 |
|       |                  | 2498.5 (39675) | 26.09 | 25.23 |
|       |                  | 2687.5 (41565) | 25.89 | 25.12 |
|       | 25RB-Low (0)     | 2640.3(41093)  | 25.79 | 24.96 |
|       |                  | 2593 (40620)   | 25.90 | 25.10 |
|       |                  | 2545.8(40148)  | 25.75 | 24.98 |
|       |                  | 2498.5 (39675) | 25.96 | 25.12 |
|       | 50RB (0)         | 2687.5 (41565) | 24.99 | 24.06 |
|       |                  | 2640.3(41093)  | 24.86 | 23.97 |
|       |                  | 2593 (40620)   | 25.01 | 24.09 |
|       |                  | 2545.8(40148)  | 24.83 | 23.93 |

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 15MHz | 1RB-High (74)    | 2682.5 (41515) | 25.85 | 25.07 |
|       |                  | 2637.8(41068)  | 25.65 | 24.88 |
|       |                  | 2593 (40620)   | 25.86 | 25.07 |
|       |                  | 2548.3(40173)  | 25.68 | 24.91 |
|       |                  | 2503.5 (39725) | 25.88 | 25.07 |
|       | 1RB-Middle (37)  | 2682.5 (41515) | 26.01 | 25.23 |
|       |                  | 2637.8(41068)  | 25.88 | 25.09 |
|       |                  | 2593 (40620)   | 25.99 | 25.19 |
|       |                  | 2548.3(40173)  | 25.86 | 25.07 |
|       |                  | 2503.5 (39725) | 26.04 | 25.22 |
|       | 1RB-Low (0)      | 2682.5 (41515) | 25.90 | 25.14 |
|       |                  | 2637.8(41068)  | 25.86 | 25.06 |
|       |                  | 2593 (40620)   | 25.91 | 25.13 |
|       |                  | 2548.3(40173)  | 25.76 | 25.02 |
|       |                  | 2503.5 (39725) | 25.95 | 25.12 |
|       | 36RB-High (38)   | 2682.5 (41515) | 25.02 | 24.05 |
|       |                  | 2637.8(41068)  | 24.88 | 23.94 |
|       |                  | 2593 (40620)   | 25.01 | 24.07 |
|       |                  | 2548.3(40173)  | 24.83 | 23.86 |
|       |                  | 2503.5 (39725) | 25.05 | 24.07 |
|       | 36RB-Middle (19) | 2682.5 (41515) | 25.03 | 24.05 |
|       |                  | 2637.8(41068)  | 24.93 | 24.01 |
|       |                  | 2593 (40620)   | 25.05 | 24.08 |
|       |                  | 2548.3(40173)  | 24.88 | 23.90 |
|       |                  | 2503.5 (39725) | 25.10 | 24.11 |
|       | 36RB-Low (0)     | 2682.5 (41515) | 25.00 | 24.02 |
|       |                  | 2637.8(41068)  | 24.97 | 24.01 |
|       |                  | 2593 (40620)   | 25.06 | 24.11 |
|       |                  | 2548.3(40173)  | 24.86 | 23.92 |
|       |                  | 2503.5 (39725) | 25.08 | 24.10 |
|       | 75RB (0)         | 2682.5 (41515) | 25.00 | 24.08 |
|       |                  | 2637.8(41068)  | 24.95 | 24.02 |
|       |                  | 2593 (40620)   | 25.03 | 24.12 |
|       |                  | 2548.3(40173)  | 24.84 | 23.94 |
|       |                  | 2503.5 (39725) | 25.07 | 24.14 |
| 20MHz | 1RB-High (99)    | 2680 (41490)   | 25.82 | 25.05 |
|       |                  | 2636.5(41055)  | 25.65 | 24.85 |
|       |                  | 2593 (40620)   | 25.80 | 25.03 |
|       |                  | 2549.5(40185)  | 25.63 | 24.89 |
|       |                  | 2506 (39750)   | 25.86 | 25.07 |
|       | 1RB-Middle (50)  | 2680 (41490)   | 26.17 | 25.36 |
|       |                  | 2636.5(41055)  | 26.02 | 25.22 |
|       |                  | 2593 (40620)   | 26.13 | 25.31 |
|       |                  | 2549.5(40185)  | 25.96 | 25.16 |
|       |                  | 2506 (39750)   | 26.16 | 25.33 |
|       | 1RB-Low (0)      | 2680 (41490)   | 25.88 | 25.13 |
|       |                  | 2636.5(41055)  | 25.89 | 25.09 |
|       |                  | 2593 (40620)   | 25.87 | 25.10 |
|       |                  | 2549.5(40185)  | 25.77 | 25.02 |
|       |                  | 2506 (39750)   | 25.93 | 25.11 |
|       | 50RB-High (50)   | 2680 (41490)   | 25.05 | 24.14 |
|       |                  | 2636.5(41055)  | 24.89 | 24.02 |
|       |                  | 2593 (40620)   | 25.00 | 24.12 |
|       |                  | 2549.5(40185)  | 24.79 | 23.92 |
|       |                  | 2506 (39750)   | 25.03 | 24.13 |
|       | 50RB-Middle (25) | 2680 (41490)   | 25.09 | 24.18 |
|       |                  | 2636.5(41055)  | 25.03 | 24.12 |
|       |                  | 2593 (40620)   | 25.07 | 24.18 |
|       |                  | 2549.5(40185)  | 24.89 | 24.00 |
|       |                  | 2506 (39750)   | 25.02 | 24.21 |
|       | 50RB-Low (0)     | 2680 (41490)   | 25.01 | 24.12 |
|       |                  | 2636.5(41055)  | 25.06 | 24.17 |
|       |                  | 2593 (40620)   | 25.08 | 24.19 |
|       |                  | 2549.5(40185)  | 24.86 | 23.99 |
|       |                  | 2506 (39750)   | 25.10 | 24.20 |
|       | 100RB (0)        | 2680 (41490)   | 25.04 | 24.14 |
|       |                  | 2636.5(41055)  | 25.01 | 24.09 |
|       |                  | 2593 (40620)   | 25.06 | 24.15 |
|       |                  | 2549.5(40185)  | 24.86 | 23.93 |
|       |                  | 2506 (39750)   | 25.10 | 24.14 |

### LTE Band41 PC2(DSI2)

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 5MHz  | 1RB-High (24)    | 2687.5 (41565) | 23.59 | 22.87 |
|       |                  | 2640.3(41093)  | 23.46 | 22.71 |
|       |                  | 2593 (40620)   | 23.61 | 22.87 |
|       |                  | 2545.8(40148)  | 23.44 | 22.69 |
|       |                  | 2498.5 (39675) | 23.67 | 22.93 |
|       | 1RB-Middle (12)  | 2687.5 (41565) | 23.72 | 23.00 |
|       |                  | 2640.3(41093)  | 23.63 | 22.88 |
|       |                  | 2593 (40620)   | 23.74 | 23.00 |
|       |                  | 2545.8(40148)  | 23.56 | 22.90 |
|       | 1RB-Low (0)      | 2498.5 (39675) | 23.79 | 23.06 |
|       |                  | 2687.5 (41565) | 23.61 | 22.85 |
|       |                  | 2640.3(41093)  | 23.55 | 22.80 |
|       |                  | 2593 (40620)   | 23.63 | 22.87 |
|       | 12RB-High (13)   | 2545.8(40148)  | 23.48 | 22.73 |
|       |                  | 2498.5 (39675) | 23.66 | 22.92 |
|       |                  | 2687.5 (41565) | 22.64 | 21.70 |
|       |                  | 2640.3(41093)  | 22.54 | 21.62 |
|       | 12RB-Middle (6)  | 2593 (40620)   | 22.63 | 21.70 |
|       |                  | 2545.8(40148)  | 22.47 | 21.52 |
|       |                  | 2498.5 (39675) | 22.71 | 21.77 |
|       |                  | 2687.5 (41565) | 22.74 | 21.78 |
|       | 12RB-Low (0)     | 2640.3(41093)  | 22.62 | 21.72 |
|       |                  | 2593 (40620)   | 22.75 | 21.80 |
|       |                  | 2545.8(40148)  | 22.57 | 21.62 |
|       |                  | 2498.5 (39675) | 22.78 | 21.85 |
|       | 25RB (0)         | 2687.5 (41565) | 22.66 | 21.73 |
|       |                  | 2640.3(41093)  | 22.60 | 21.71 |
|       |                  | 2593 (40620)   | 22.70 | 21.76 |
|       |                  | 2545.8(40148)  | 22.50 | 21.57 |
| 10MHz | 1RB-High (49)    | 2498.5 (39675) | 22.73 | 21.77 |
|       |                  | 2687.5 (41565) | 22.67 | 21.75 |
|       |                  | 2640.3(41093)  | 22.59 | 21.70 |
|       |                  | 2593 (40620)   | 22.69 | 21.81 |
|       |                  | 2545.8(40148)  | 22.51 | 21.59 |
|       | 1RB-Middle (24)  | 2498.5 (39675) | 22.73 | 21.77 |
|       |                  | 2545.8(40148)  | 22.50 | 21.57 |
|       |                  | 2593 (40620)   | 22.70 | 21.76 |
|       |                  | 2640.3(41093)  | 22.60 | 21.71 |
|       |                  | 2687.5 (41565) | 22.66 | 21.73 |
|       | 1RB-Low (0)      | 2498.5 (39675) | 22.78 | 21.85 |
|       |                  | 2545.8(40148)  | 22.57 | 21.62 |
|       |                  | 2593 (40620)   | 22.75 | 21.80 |
|       |                  | 2640.3(41093)  | 22.62 | 21.72 |
|       |                  | 2687.5 (41565) | 22.74 | 21.78 |
|       | 25RB-High (25)   | 2687.5 (41565) | 22.72 | 21.78 |
|       |                  | 2639(41080)    | 22.61 | 21.69 |
|       |                  | 2593 (40620)   | 22.71 | 21.79 |
|       |                  | 2547(40160)    | 22.52 | 21.61 |
|       |                  | 2501 (39700)   | 22.76 | 21.85 |
|       | 25RB-Middle (12) | 2501 (39700)   | 22.80 | 21.88 |
|       |                  | 2547(40160)    | 22.61 | 21.68 |
|       |                  | 2593 (40620)   | 22.83 | 21.90 |
|       |                  | 2639(41080)    | 22.70 | 21.81 |
|       |                  | 2685 (41540)   | 22.80 | 21.88 |
|       | 25RB-Low (0)     | 2685 (41540)   | 22.80 | 21.86 |
|       |                  | 2639(41080)    | 22.76 | 21.86 |
|       |                  | 2593 (40620)   | 22.86 | 21.91 |
|       |                  | 2547(40160)    | 22.64 | 21.70 |
|       |                  | 2501 (39700)   | 22.85 | 21.92 |
|       | 50RB (0)         | 2501 (39700)   | 22.85 | 21.92 |
|       |                  | 2547(40160)    | 22.55 | 21.68 |
|       |                  | 2593 (40620)   | 22.75 | 21.86 |
|       |                  | 2639(41080)    | 22.66 | 21.79 |
|       |                  | 2685 (41540)   | 22.76 | 21.87 |

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 15MHz | 1RB-High (74)    | 2682.5 (41515) | 23.46 | 22.71 |
|       |                  | 2637.8(41068)  | 23.32 | 22.60 |
|       |                  | 2593 (40620)   | 23.47 | 22.75 |
|       |                  | 2548.3(40173)  | 23.28 | 22.54 |
|       |                  | 2503.5 (39725) | 23.53 | 22.78 |
|       | 1RB-Middle (37)  | 2682.5 (41515) | 23.72 | 22.98 |
|       |                  | 2637.8(41068)  | 23.63 | 22.91 |
|       |                  | 2593 (40620)   | 23.72 | 22.99 |
|       |                  | 2548.3(40173)  | 23.55 | 22.80 |
|       |                  | 2503.5 (39725) | 23.77 | 23.02 |
|       | 1RB-Low (0)      | 2682.5 (41515) | 23.52 | 22.77 |
|       |                  | 2637.8(41068)  | 23.52 | 22.78 |
|       |                  | 2593 (40620)   | 23.53 | 22.80 |
|       |                  | 2548.3(40173)  | 23.39 | 22.64 |
|       |                  | 2503.5 (39725) | 23.57 | 22.82 |
|       | 36RB-High (38)   | 2682.5 (41515) | 22.60 | 21.62 |
|       |                  | 2637.8(41068)  | 22.50 | 21.54 |
|       |                  | 2593 (40620)   | 22.60 | 21.61 |
|       |                  | 2548.3(40173)  | 22.41 | 21.41 |
|       |                  | 2503.5 (39725) | 22.65 | 21.64 |
|       | 36RB-Middle (19) | 2682.5 (41515) | 22.69 | 21.70 |
|       |                  | 2637.8(41068)  | 22.62 | 21.66 |
|       |                  | 2593 (40620)   | 22.71 | 21.73 |
|       |                  | 2548.3(40173)  | 22.51 | 21.50 |
|       |                  | 2503.5 (39725) | 22.74 | 21.74 |
|       | 36RB-Low (0)     | 2682.5 (41515) | 22.64 | 21.69 |
|       |                  | 2637.8(41068)  | 22.64 | 21.68 |
|       |                  | 2593 (40620)   | 22.67 | 21.70 |
|       |                  | 2548.3(40173)  | 22.49 | 21.51 |
|       |                  | 2503.5 (39725) | 22.71 | 21.73 |
|       | 75RB (0)         | 2682.5 (41515) | 22.59 | 21.68 |
|       |                  | 2637.8(41068)  | 22.56 | 21.64 |
|       |                  | 2593 (40620)   | 22.65 | 21.67 |
|       |                  | 2548.3(40173)  | 22.46 | 21.50 |
|       |                  | 2503.5 (39725) | 22.75 | 21.83 |
| 20MHz | 1RB-High (99)    | 2680 (41490)   | 23.32 | 22.56 |
|       |                  | 2636.5(41055)  | 23.15 | 22.43 |
|       |                  | 2593 (40620)   | 23.32 | 22.59 |
|       |                  | 2549.5(40185)  | 23.16 | 22.43 |
|       |                  | 2506 (39750)   | 23.37 | 22.62 |
|       | 1RB-Middle (50)  | 2680 (41490)   | 23.76 | 23.00 |
|       |                  | 2636.5(41055)  | 23.66 | 22.92 |
|       |                  | 2593 (40620)   | 23.73 | 22.99 |
|       |                  | 2549.5(40185)  | 23.58 | 22.84 |
|       |                  | 2506 (39750)   | 23.71 | 23.04 |
|       | 1RB-Low (0)      | 2680 (41490)   | 23.39 | 22.64 |
|       |                  | 2636.5(41055)  | 23.40 | 22.67 |
|       |                  | 2593 (40620)   | 23.40 | 22.66 |
|       |                  | 2549.5(40185)  | 23.28 | 22.55 |
|       |                  | 2506 (39750)   | 23.39 | 22.66 |
|       | 50RB-High (50)   | 2680 (41490)   | 22.50 | 21.60 |
|       |                  | 2636.5(41055)  | 22.40 | 21.50 |
|       |                  | 2593 (40620)   | 22.45 | 21.56 |
|       |                  | 2549.5(40185)  | 22.27 | 21.35 |
|       |                  | 2506 (39750)   | 22.50 | 21.61 |
|       | 50RB-Middle (25) | 2680 (41490)   | 22.73 | 21.75 |
|       |                  | 2636.5(41055)  | 22.58 | 21.70 |
|       |                  | 2593 (40620)   | 22.66 | 21.75 |
|       |                  | 2549.5(40185)  | 22.43 | 21.54 |
|       |                  | 2506 (39750)   | 22.70 | 21.80 |
|       | 50RB-Low (0)     | 2680 (41490)   | 22.59 | 21.70 |
|       |                  | 2636.5(41055)  | 22.66 | 21.81 |
|       |                  | 2593 (40620)   | 22.65 | 21.78 |
|       |                  | 2549.5(40185)  | 22.46 | 21.58 |
|       |                  | 2506 (39750)   | 22.70 | 21.81 |
|       | 100RB (0)        | 2680 (41490)   | 22.58 | 21.67 |
|       |                  | 2636.5(41055)  | 22.54 | 21.64 |
|       |                  | 2593 (40620)   | 22.59 | 21.70 |
|       |                  | 2549.5(40185)  | 22.36 | 21.48 |
|       |                  | 2506 (39750)   | 22.61 | 21.70 |

### LTE Band41 PC2(DSI3)

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 5MHz  | 1RB-High (24)    | 2687.5 (41565) | 21.94 | 22.20 |
|       |                  | 2640.3(41093)  | 21.82 | 22.08 |
|       |                  | 2593 (40620)   | 21.93 | 22.25 |
|       |                  | 2545.8(40148)  | 21.80 | 22.06 |
|       |                  | 2498.5 (39675) | 22.04 | 22.29 |
|       | 1RB-Middle (12)  | 2687.5 (41565) | 22.06 | 22.32 |
|       |                  | 2640.3(41093)  | 21.97 | 22.22 |
|       |                  | 2593 (40620)   | 22.10 | 22.34 |
|       |                  | 2545.8(40148)  | 21.93 | 22.16 |
|       |                  | 2498.5 (39675) | 22.12 | 22.33 |
|       | 1RB-Low (0)      | 2687.5 (41565) | 21.95 | 22.22 |
|       |                  | 2640.3(41093)  | 21.88 | 22.15 |
|       |                  | 2593 (40620)   | 21.99 | 22.25 |
|       |                  | 2545.8(40148)  | 21.82 | 22.04 |
|       |                  | 2498.5 (39675) | 22.03 | 22.30 |
|       | 12RB-High (13)   | 2687.5 (41565) | 21.99 | 22.05 |
|       |                  | 2640.3(41093)  | 21.88 | 21.97 |
|       |                  | 2593 (40620)   | 22.00 | 22.07 |
|       |                  | 2545.8(40148)  | 21.81 | 21.93 |
|       |                  | 2498.5 (39675) | 22.07 | 22.16 |
|       | 12RB-Middle (6)  | 2687.5 (41565) | 22.04 | 22.11 |
|       |                  | 2640.3(41093)  | 21.96 | 22.03 |
|       |                  | 2593 (40620)   | 22.05 | 22.14 |
|       |                  | 2545.8(40148)  | 21.87 | 21.96 |
|       |                  | 2498.5 (39675) | 22.13 | 22.21 |
|       | 12RB-Low (0)     | 2687.5 (41565) | 21.99 | 22.05 |
|       |                  | 2640.3(41093)  | 21.91 | 22.01 |
|       |                  | 2593 (40620)   | 21.99 | 22.09 |
|       |                  | 2545.8(40148)  | 21.82 | 21.91 |
|       |                  | 2498.5 (39675) | 22.06 | 22.11 |
|       | 25RB (0)         | 2687.5 (41565) | 22.00 | 22.09 |
|       |                  | 2640.3(41093)  | 21.94 | 22.03 |
|       |                  | 2593 (40620)   | 22.07 | 22.14 |
|       |                  | 2545.8(40148)  | 21.89 | 21.98 |
|       |                  | 2498.5 (39675) | 22.11 | 22.20 |
| 10MHz | 1RB-High (49)    | 2685 (41540)   | 22.02 | 22.30 |
|       |                  | 2639(41080)    | 21.86 | 22.16 |
|       |                  | 2593 (40620)   | 22.06 | 22.35 |
|       |                  | 2547(40160)    | 21.86 | 22.15 |
|       |                  | 2501 (39700)   | 22.10 | 22.39 |
|       | 1RB-Middle (24)  | 2685 (41540)   | 22.12 | 22.39 |
|       |                  | 2639(41080)    | 22.09 | 22.37 |
|       |                  | 2593 (40620)   | 22.20 | 22.46 |
|       |                  | 2547(40160)    | 22.01 | 22.29 |
|       |                  | 2501 (39700)   | 22.21 | 22.51 |
|       | 1RB-Low (0)      | 2685 (41540)   | 22.05 | 22.37 |
|       |                  | 2639(41080)    | 22.02 | 22.30 |
|       |                  | 2593 (40620)   | 22.10 | 22.38 |
|       |                  | 2547(40160)    | 21.94 | 22.22 |
|       |                  | 2501 (39700)   | 22.10 | 22.38 |
|       | 25RB-High (25)   | 2685 (41540)   | 22.05 | 22.12 |
|       |                  | 2639(41080)    | 21.96 | 22.05 |
|       |                  | 2593 (40620)   | 22.07 | 22.20 |
|       |                  | 2547(40160)    | 21.92 | 21.97 |
|       |                  | 2501 (39700)   | 22.14 | 22.24 |
|       | 25RB-Middle (12) | 2685 (41540)   | 22.09 | 22.16 |
|       |                  | 2639(41080)    | 22.01 | 22.11 |
|       |                  | 2593 (40620)   | 22.12 | 22.22 |
|       |                  | 2547(40160)    | 21.94 | 22.03 |
|       |                  | 2501 (39700)   | 22.11 | 22.26 |
|       | 25RB-Low (0)     | 2685 (41540)   | 22.09 | 22.15 |
|       |                  | 2639(41080)    | 22.04 | 22.15 |
|       |                  | 2593 (40620)   | 22.16 | 22.25 |
|       |                  | 2547(40160)    | 21.96 | 21.99 |
|       |                  | 2501 (39700)   | 22.16 | 22.25 |
|       | 50RB (0)         | 2685 (41540)   | 22.06 | 22.13 |
|       |                  | 2639(41080)    | 21.97 | 22.08 |
|       |                  | 2593 (40620)   | 22.07 | 22.21 |
|       |                  | 2547(40160)    | 21.93 | 22.04 |
|       |                  | 2501 (39700)   | 22.10 | 22.24 |

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 15MHz | 1RB-High (74)    | 2682.5 (41515) | 21.93 | 22.20 |
|       |                  | 2637.8(41068)  | 21.81 | 22.05 |
|       |                  | 2593 (40620)   | 21.98 | 22.24 |
|       |                  | 2548.3(40173)  | 21.77 | 22.07 |
|       |                  | 2503.5 (39725) | 21.99 | 22.28 |
|       | 1RB-Middle (37)  | 2682.5 (41515) | 22.09 | 22.35 |
|       |                  | 2637.8(41068)  | 21.99 | 22.28 |
|       |                  | 2593 (40620)   | 22.13 | 22.39 |
|       |                  | 2548.3(40173)  | 21.94 | 22.21 |
|       |                  | 2503.5 (39725) | 22.10 | 22.40 |
|       | 1RB-Low (0)      | 2682.5 (41515) | 21.99 | 22.26 |
|       |                  | 2637.8(41068)  | 21.94 | 22.26 |
|       |                  | 2593 (40620)   | 22.04 | 22.30 |
|       |                  | 2548.3(40173)  | 21.89 | 22.15 |
|       |                  | 2503.5 (39725) | 22.01 | 22.30 |
|       | 36RB-High (38)   | 2682.5 (41515) | 22.04 | 22.05 |
|       |                  | 2637.8(41068)  | 21.91 | 21.94 |
|       |                  | 2593 (40620)   | 22.04 | 22.06 |
|       |                  | 2548.3(40173)  | 21.84 | 21.86 |
|       |                  | 2503.5 (39725) | 22.04 | 22.08 |
|       | 36RB-Middle (19) | 2682.5 (41515) | 22.04 | 22.06 |
|       |                  | 2637.8(41068)  | 21.98 | 22.00 |
|       |                  | 2593 (40620)   | 22.07 | 22.09 |
|       |                  | 2548.3(40173)  | 21.89 | 21.90 |
|       |                  | 2503.5 (39725) | 22.12 | 22.11 |
|       | 36RB-Low (0)     | 2682.5 (41515) | 22.01 | 22.02 |
|       |                  | 2637.8(41068)  | 21.99 | 22.02 |
|       |                  | 2593 (40620)   | 22.09 | 22.12 |
|       |                  | 2548.3(40173)  | 21.89 | 21.90 |
|       |                  | 2503.5 (39725) | 22.08 | 22.11 |
|       | 75RB (0)         | 2682.5 (41515) | 22.00 | 22.08 |
|       |                  | 2637.8(41068)  | 22.00 | 22.08 |
|       |                  | 2593 (40620)   | 22.10 | 22.14 |
|       |                  | 2548.3(40173)  | 21.87 | 21.95 |
|       |                  | 2503.5 (39725) | 22.11 | 22.17 |
| 20MHz | 1RB-High (99)    | 2680 (41490)   | 21.93 | 22.23 |
|       |                  | 2636.5(41055)  | 21.81 | 22.10 |
|       |                  | 2593 (40620)   | 21.97 | 22.28 |
|       |                  | 2549.5(40185)  | 21.79 | 22.07 |
|       |                  | 2506 (39750)   | 22.01 | 22.28 |
|       | 1RB-Middle (50)  | 2680 (41490)   | 22.27 | 22.32 |
|       |                  | 2636.5(41055)  | 22.19 | 22.28 |
|       |                  | 2593 (40620)   | 22.18 | 22.35 |
|       |                  | 2549.5(40185)  | 22.08 | 22.10 |
|       |                  | 2506 (39750)   | 22.21 | 22.36 |
|       | 1RB-Low (0)      | 2680 (41490)   | 22.01 | 22.30 |
|       |                  | 2636.5(41055)  | 22.05 | 22.35 |
|       |                  | 2593 (40620)   | 22.05 | 22.33 |
|       |                  | 2549.5(40185)  | 21.91 | 22.19 |
|       |                  | 2506 (39750)   | 22.05 | 22.32 |
|       | 50RB-High (50)   | 2680 (41490)   | 22.04 | 22.18 |
|       |                  | 2636.5(41055)  | 21.94 | 22.08 |
|       |                  | 2593 (40620)   | 22.01 | 22.16 |
|       |                  | 2549.5(40185)  | 21.84 | 21.96 |
|       |                  | 2506 (39750)   | 22.03 | 22.19 |
|       | 50RB-Middle (25) | 2680 (41490)   | 22.17 | 22.19 |
|       |                  | 2636.5(41055)  | 22.04 | 22.18 |
|       |                  | 2593 (40620)   | 22.12 | 22.24 |
|       |                  | 2549.5(40185)  | 21.94 | 22.05 |
|       |                  | 2506 (39750)   | 22.15 | 22.32 |
|       | 50RB-Low (0)     | 2680 (41490)   | 22.01 | 22.15 |
|       |                  | 2636.5(41055)  | 22.09 | 22.21 |
|       |                  | 2593 (40620)   | 22.10 | 22.26 |
|       |                  | 2549.5(40185)  | 21.92 | 22.03 |
|       |                  | 2506 (39750)   | 22.14 | 22.25 |
|       | 100RB (0)        | 2680 (41490)   | 22.06 | 22.16 |
|       |                  | 2636.5(41055)  | 22.02 | 22.12 |
|       |                  | 2593 (40620)   | 22.10 | 22.19 |
|       |                  | 2549.5(40185)  | 21.84 | 21.95 |
|       |                  | 2506 (39750)   | 22.09 | 22.18 |

**LTE Band66(DSI1)**

|          |                 |                 |       |       |
|----------|-----------------|-----------------|-------|-------|
| 1.4MHz   | 1RB-High (5)    | 1779.3 (132665) | 23.09 | 22.30 |
|          |                 | 1745 (132322)   | 23.10 | 22.35 |
|          |                 | 1710.7 (131979) | 23.13 | 22.54 |
|          | 1RB-Middle (3)  | 1779.3 (132665) | 23.19 | 22.50 |
|          |                 | 1745 (132322)   | 23.21 | 22.56 |
|          |                 | 1710.7 (131979) | 23.23 | 22.63 |
|          | 1RB-Low (0)     | 1779.3 (132665) | 23.07 | 22.39 |
|          |                 | 1745 (132322)   | 23.11 | 22.35 |
|          |                 | 1710.7 (131979) | 23.13 | 22.52 |
|          | 3RB-High (3)    | 1779.3 (132665) | 23.17 | 22.26 |
|          |                 | 1745 (132322)   | 23.22 | 22.17 |
|          |                 | 1710.7 (131979) | 23.22 | 22.24 |
|          | 3RB-Middle (1)  | 1779.3 (132665) | 23.22 | 22.27 |
|          |                 | 1745 (132322)   | 23.25 | 22.25 |
|          |                 | 1710.7 (131979) | 23.28 | 22.34 |
|          | 3RB-Low (0)     | 1779.3 (132665) | 23.20 | 22.18 |
|          |                 | 1745 (132322)   | 23.22 | 22.22 |
|          |                 | 1710.7 (131979) | 23.24 | 22.22 |
| 6RB (0)  | 1779.3 (132665) | 22.26           | 21.37 |       |
|          | 1745 (132322)   | 22.24           | 21.36 |       |
|          | 1710.7 (131979) | 22.28           | 21.42 |       |
|          |                 |                 |       |       |
| 3MHz     | 1RB-High (14)   | 1778.5 (132657) | 23.18 | 22.50 |
|          |                 | 1745 (132322)   | 23.20 | 22.50 |
|          |                 | 1711.5 (131987) | 23.18 | 22.56 |
|          | 1RB-Middle (7)  | 1778.5 (132657) | 23.34 | 22.60 |
|          |                 | 1745 (132322)   | 23.33 | 22.68 |
|          |                 | 1711.5 (131987) | 23.34 | 22.58 |
|          | 1RB-Low (0)     | 1778.5 (132657) | 23.18 | 22.56 |
|          |                 | 1745 (132322)   | 23.23 | 22.52 |
|          |                 | 1711.5 (131987) | 23.23 | 22.48 |
|          | 8RB-High (7)    | 1778.5 (132657) | 22.24 | 21.31 |
|          |                 | 1745 (132322)   | 22.23 | 21.33 |
|          |                 | 1711.5 (131987) | 22.28 | 21.37 |
|          | 8RB-Middle (4)  | 1778.5 (132657) | 22.27 | 21.37 |
|          |                 | 1745 (132322)   | 22.27 | 21.35 |
|          |                 | 1711.5 (131987) | 22.32 | 21.43 |
|          | 8RB-Low (0)     | 1778.5 (132657) | 22.23 | 21.30 |
|          |                 | 1745 (132322)   | 22.24 | 21.32 |
|          |                 | 1711.5 (131987) | 22.30 | 21.38 |
| 15RB (0) | 1778.5 (132657) | 22.22           | 21.26 |       |
|          | 1745 (132322)   | 22.25           | 21.28 |       |
|          | 1711.5 (131987) | 22.28           | 21.34 |       |

|       |                  |                 |       |       |
|-------|------------------|-----------------|-------|-------|
| 5MHz  | 1RB-High (24)    | 1777.5 (132647) | 23.05 | 22.34 |
|       |                  | 1745 (132322)   | 23.06 | 22.39 |
|       |                  | 1712.5 (131997) | 23.09 | 22.53 |
|       | 1RB-Middle (12)  | 1777.5 (132647) | 23.30 | 22.76 |
|       |                  | 1745 (132322)   | 23.37 | 22.75 |
|       |                  | 1712.5 (131997) | 23.34 | 22.77 |
|       | 1RB-Low (0)      | 1777.5 (132647) | 23.07 | 22.44 |
|       |                  | 1745 (132322)   | 23.06 | 22.46 |
|       |                  | 1712.5 (131997) | 23.12 | 22.46 |
|       | 12RB-High (13)   | 1777.5 (132647) | 22.25 | 21.25 |
|       |                  | 1745 (132322)   | 22.24 | 21.23 |
|       |                  | 1712.5 (131997) | 22.29 | 21.33 |
|       | 12RB-Middle (6)  | 1777.5 (132647) | 22.31 | 21.35 |
|       |                  | 1745 (132322)   | 22.31 | 21.29 |
|       |                  | 1712.5 (131997) | 22.34 | 21.36 |
|       | 12RB-Low (0)     | 1777.5 (132647) | 22.26 | 21.29 |
|       |                  | 1745 (132322)   | 22.23 | 21.26 |
|       |                  | 1712.5 (131997) | 22.27 | 21.32 |
|       | 25RB (0)         | 1777.5 (132647) | 22.25 | 21.27 |
|       |                  | 1745 (132322)   | 22.25 | 21.28 |
|       |                  | 1712.5 (131997) | 22.31 | 21.32 |
| 10MHz | 1RB-High (49)    | 1775 (132622)   | 23.10 | 22.37 |
|       |                  | 1745 (132322)   | 23.16 | 22.46 |
|       |                  | 1715 (132022)   | 23.14 | 22.50 |
|       | 1RB-Middle (24)  | 1775 (132622)   | 23.27 | 22.70 |
|       |                  | 1745 (132322)   | 23.27 | 22.53 |
|       |                  | 1715 (132022)   | 23.35 | 22.72 |
|       | 1RB-Low (0)      | 1775 (132622)   | 23.19 | 22.62 |
|       |                  | 1745 (132322)   | 23.19 | 22.47 |
|       |                  | 1715 (132022)   | 23.18 | 22.58 |
|       | 25RB-High (25)   | 1775 (132622)   | 22.28 | 21.33 |
|       |                  | 1745 (132322)   | 22.25 | 21.28 |
|       |                  | 1715 (132022)   | 22.31 | 21.36 |
|       | 25RB-Middle (12) | 1775 (132622)   | 22.34 | 21.38 |
|       |                  | 1745 (132322)   | 22.29 | 21.30 |
|       |                  | 1715 (132022)   | 22.33 | 21.36 |
|       | 25RB-Low (0)     | 1775 (132622)   | 22.35 | 21.40 |
|       |                  | 1745 (132322)   | 22.30 | 21.31 |
|       |                  | 1715 (132022)   | 22.32 | 21.39 |
|       | 50RB (0)         | 1775 (132622)   | 22.35 | 21.40 |
|       |                  | 1745 (132322)   | 22.29 | 21.31 |
|       |                  | 1715 (132022)   | 22.33 | 21.37 |

|       |                  |                 |       |       |
|-------|------------------|-----------------|-------|-------|
| 15MHz | 1RB-High (74)    | 1772.5 (132597) | 23.07 | 22.35 |
|       |                  | 1745 (132322)   | 23.08 | 22.47 |
|       |                  | 1717.5 (132047) | 23.10 | 22.45 |
|       | 1RB-Middle (37)  | 1772.5 (132597) | 23.23 | 22.61 |
|       |                  | 1745 (132322)   | 23.23 | 22.59 |
|       |                  | 1717.5 (132047) | 23.27 | 22.68 |
|       | 1RB-Low (0)      | 1772.5 (132597) | 23.13 | 22.50 |
|       |                  | 1745 (132322)   | 23.13 | 22.51 |
|       |                  | 1717.5 (132047) | 23.16 | 22.52 |
|       | 36RB-High (38)   | 1772.5 (132597) | 22.30 | 21.31 |
|       |                  | 1745 (132322)   | 22.25 | 21.22 |
|       |                  | 1717.5 (132047) | 22.31 | 21.35 |
|       | 36RB-Middle (19) | 1772.5 (132597) | 22.35 | 21.36 |
|       |                  | 1745 (132322)   | 22.29 | 21.28 |
|       |                  | 1717.5 (132047) | 22.35 | 21.35 |
|       | 36RB-Low (0)     | 1772.5 (132597) | 22.35 | 21.37 |
|       |                  | 1745 (132322)   | 22.29 | 21.28 |
|       |                  | 1717.5 (132047) | 22.33 | 21.33 |
|       | 75RB (0)         | 1772.5 (132597) | 22.31 | 21.34 |
|       |                  | 1745 (132322)   | 22.27 | 21.27 |
|       |                  | 1717.5 (132047) | 22.29 | 21.34 |
| 20MHz | 1RB-High (99)    | 1770 (132572)   | 23.01 | 22.25 |
|       |                  | 1745 (132322)   | 23.02 | 22.26 |
|       |                  | 1720 (132072)   | 23.02 | 22.53 |
|       | 1RB-Middle (50)  | 1770 (132572)   | 23.31 | 22.68 |
|       |                  | 1745 (132322)   | 23.30 | 22.60 |
|       |                  | 1720 (132072)   | 23.35 | 22.76 |
|       | 1RB-Low (0)      | 1770 (132572)   | 23.05 | 22.37 |
|       |                  | 1745 (132322)   | 23.07 | 22.48 |
|       |                  | 1720 (132072)   | 23.07 | 22.50 |
|       | 50RB-High (50)   | 1770 (132572)   | 22.24 | 21.28 |
|       |                  | 1745 (132322)   | 22.18 | 21.18 |
|       |                  | 1720 (132072)   | 22.30 | 21.36 |
|       | 50RB-Middle (25) | 1770 (132572)   | 22.34 | 21.40 |
|       |                  | 1745 (132322)   | 22.30 | 21.30 |
|       |                  | 1720 (132072)   | 22.28 | 21.36 |
|       | 50RB-Low (0)     | 1770 (132572)   | 22.36 | 21.39 |
|       |                  | 1745 (132322)   | 22.27 | 21.28 |
|       |                  | 1720 (132072)   | 22.39 | 21.35 |
|       | 100RB (0)        | 1770 (132572)   | 22.32 | 21.34 |
|       |                  | 1745 (132322)   | 22.21 | 21.20 |
|       |                  | 1720 (132072)   | 22.27 | 21.31 |

**LTE Band66(DSI2)**

|        |                |                 |       |       |
|--------|----------------|-----------------|-------|-------|
| 1.4MHz | 1RB-High (5)   | 1779.3 (132665) | 22.23 | 21.54 |
|        |                | 1745 (132322)   | 22.26 | 21.50 |
|        |                | 1710.7 (131979) | 22.30 | 21.64 |
|        | 1RB-Middle (3) | 1779.3 (132665) | 22.36 | 21.72 |
|        |                | 1745 (132322)   | 22.37 | 21.68 |
|        |                | 1710.7 (131979) | 22.40 | 21.84 |
|        | 1RB-Low (0)    | 1779.3 (132665) | 22.21 | 21.67 |
|        |                | 1745 (132322)   | 22.26 | 21.51 |
|        |                | 1710.7 (131979) | 22.28 | 21.60 |
|        | 3RB-High (3)   | 1779.3 (132665) | 22.37 | 21.32 |
|        |                | 1745 (132322)   | 22.36 | 21.35 |
|        |                | 1710.7 (131979) | 22.40 | 21.45 |
|        | 3RB-Middle (1) | 1779.3 (132665) | 22.36 | 21.43 |
|        |                | 1745 (132322)   | 22.39 | 21.40 |
|        |                | 1710.7 (131979) | 22.41 | 21.51 |
|        | 3RB-Low (0)    | 1779.3 (132665) | 22.35 | 21.40 |
|        |                | 1745 (132322)   | 22.34 | 21.38 |
|        |                | 1710.7 (131979) | 22.38 | 21.40 |
|        | 6RB (0)        | 1779.3 (132665) | 21.36 | 20.44 |
|        |                | 1745 (132322)   | 21.33 | 20.45 |
|        |                | 1710.7 (131979) | 21.39 | 20.54 |
|        |                |                 |       |       |
| 3MHz   | 1RB-High (14)  | 1778.5 (132657) | 22.39 | 21.74 |
|        |                | 1745 (132322)   | 22.38 | 21.63 |
|        |                | 1711.5 (131987) | 22.41 | 21.81 |
|        | 1RB-Middle (7) | 1778.5 (132657) | 22.47 | 21.89 |
|        |                | 1745 (132322)   | 22.49 | 21.89 |
|        |                | 1711.5 (131987) | 22.61 | 21.99 |
|        | 1RB-Low (0)    | 1778.5 (132657) | 22.39 | 21.69 |
|        |                | 1745 (132322)   | 22.35 | 21.77 |
|        |                | 1711.5 (131987) | 22.41 | 21.76 |
|        | 8RB-High (7)   | 1778.5 (132657) | 21.41 | 20.50 |
|        |                | 1745 (132322)   | 21.41 | 20.46 |
|        |                | 1711.5 (131987) | 21.43 | 20.55 |
|        | 8RB-Middle (4) | 1778.5 (132657) | 21.46 | 20.56 |
|        |                | 1745 (132322)   | 21.45 | 20.53 |
|        |                | 1711.5 (131987) | 21.47 | 20.60 |
|        | 8RB-Low (0)    | 1778.5 (132657) | 21.41 | 20.52 |
|        |                | 1745 (132322)   | 21.42 | 20.50 |
|        |                | 1711.5 (131987) | 21.45 | 20.56 |
|        | 15RB (0)       | 1778.5 (132657) | 21.42 | 20.43 |
|        |                | 1745 (132322)   | 21.40 | 20.44 |
|        |                | 1711.5 (131987) | 21.41 | 20.50 |

|       |                  |                 |       |       |
|-------|------------------|-----------------|-------|-------|
| 5MHz  | 1RB-High (24)    | 1777.5 (132647) | 22.21 | 21.46 |
|       |                  | 1745 (132322)   | 22.15 | 21.45 |
|       |                  | 1712.5 (131997) | 22.20 | 21.64 |
|       | 1RB-Middle (12)  | 1777.5 (132647) | 22.49 | 21.67 |
|       |                  | 1745 (132322)   | 22.52 | 21.75 |
|       |                  | 1712.5 (131997) | 22.50 | 21.85 |
|       | 1RB-Low (0)      | 1777.5 (132647) | 22.22 | 21.59 |
|       |                  | 1745 (132322)   | 22.17 | 21.48 |
|       |                  | 1712.5 (131997) | 22.23 | 21.59 |
|       | 12RB-High (13)   | 1777.5 (132647) | 21.30 | 20.34 |
|       |                  | 1745 (132322)   | 21.27 | 20.27 |
|       |                  | 1712.5 (131997) | 21.34 | 20.37 |
|       | 12RB-Middle (6)  | 1777.5 (132647) | 21.39 | 20.42 |
|       |                  | 1745 (132322)   | 21.39 | 20.38 |
|       |                  | 1712.5 (131997) | 21.43 | 20.47 |
|       | 12RB-Low (0)     | 1777.5 (132647) | 21.36 | 20.38 |
|       |                  | 1745 (132322)   | 21.34 | 20.32 |
|       |                  | 1712.5 (131997) | 21.36 | 20.41 |
|       | 25RB (0)         | 1777.5 (132647) | 21.34 | 20.39 |
|       |                  | 1745 (132322)   | 21.30 | 20.28 |
|       |                  | 1712.5 (131997) | 21.34 | 20.37 |
| 10MHz | 1RB-High (49)    | 1775 (132622)   | 22.22 | 21.61 |
|       |                  | 1745 (132322)   | 22.25 | 21.48 |
|       |                  | 1715 (132022)   | 22.25 | 21.68 |
|       | 1RB-Middle (24)  | 1775 (132622)   | 22.49 | 21.81 |
|       |                  | 1745 (132322)   | 22.47 | 21.84 |
|       |                  | 1715 (132022)   | 22.49 | 21.92 |
|       | 1RB-Low (0)      | 1775 (132622)   | 22.31 | 21.69 |
|       |                  | 1745 (132322)   | 22.27 | 21.65 |
|       |                  | 1715 (132022)   | 22.30 | 21.71 |
|       | 25RB-High (25)   | 1775 (132622)   | 21.36 | 20.40 |
|       |                  | 1745 (132322)   | 21.32 | 20.33 |
|       |                  | 1715 (132022)   | 21.34 | 20.41 |
|       | 25RB-Middle (12) | 1775 (132622)   | 21.44 | 20.53 |
|       |                  | 1745 (132322)   | 21.41 | 20.42 |
|       |                  | 1715 (132022)   | 21.40 | 20.46 |
|       | 25RB-Low (0)     | 1775 (132622)   | 21.44 | 20.48 |
|       |                  | 1745 (132322)   | 21.40 | 20.42 |
|       |                  | 1715 (132022)   | 21.40 | 20.44 |
|       | 50RB (0)         | 1775 (132622)   | 21.42 | 20.47 |
|       |                  | 1745 (132322)   | 21.35 | 20.39 |
|       |                  | 1715 (132022)   | 21.36 | 20.42 |

|       |                  |                 |       |       |
|-------|------------------|-----------------|-------|-------|
| 15MHz | 1RB-High (74)    | 1772.5 (132597) | 22.09 | 21.41 |
|       |                  | 1745 (132322)   | 22.11 | 21.48 |
|       |                  | 1717.5 (132047) | 22.15 | 21.61 |
|       | 1RB-Middle (37)  | 1772.5 (132597) | 22.37 | 21.74 |
|       |                  | 1745 (132322)   | 22.32 | 21.70 |
|       |                  | 1717.5 (132047) | 22.30 | 21.74 |
|       | 1RB-Low (0)      | 1772.5 (132597) | 22.15 | 21.54 |
|       |                  | 1745 (132322)   | 22.17 | 21.58 |
|       |                  | 1717.5 (132047) | 22.17 | 21.60 |
|       | 36RB-High (38)   | 1772.5 (132597) | 21.29 | 20.33 |
|       |                  | 1745 (132322)   | 21.25 | 20.22 |
|       |                  | 1717.5 (132047) | 21.29 | 20.31 |
|       | 36RB-Middle (19) | 1772.5 (132597) | 21.41 | 20.39 |
|       |                  | 1745 (132322)   | 21.39 | 20.30 |
|       |                  | 1717.5 (132047) | 21.38 | 20.38 |
|       | 36RB-Low (0)     | 1772.5 (132597) | 21.38 | 20.38 |
|       |                  | 1745 (132322)   | 21.31 | 20.30 |
|       |                  | 1717.5 (132047) | 21.32 | 20.32 |
|       | 75RB (0)         | 1772.5 (132597) | 21.32 | 20.37 |
|       |                  | 1745 (132322)   | 21.25 | 20.27 |
|       |                  | 1717.5 (132047) | 21.29 | 20.32 |
|       |                  |                 |       |       |
| 20MHz | 1RB-High (99)    | 1770 (132572)   | 21.94 | 21.38 |
|       |                  | 1745 (132322)   | 21.98 | 21.32 |
|       |                  | 1720 (132072)   | 22.00 | 21.33 |
|       | 1RB-Middle (50)  | 1770 (132572)   | 22.44 | 21.80 |
|       |                  | 1745 (132322)   | 22.38 | 21.73 |
|       |                  | 1720 (132072)   | 22.46 | 21.76 |
|       | 1RB-Low (0)      | 1770 (132572)   | 22.02 | 21.31 |
|       |                  | 1745 (132322)   | 22.03 | 21.43 |
|       |                  | 1720 (132072)   | 22.02 | 21.48 |
|       | 50RB-High (50)   | 1770 (132572)   | 21.17 | 20.24 |
|       |                  | 1745 (132322)   | 21.12 | 20.13 |
|       |                  | 1720 (132072)   | 21.23 | 20.28 |
|       | 50RB-Middle (25) | 1770 (132572)   | 21.33 | 20.42 |
|       |                  | 1745 (132322)   | 21.31 | 20.33 |
|       |                  | 1720 (132072)   | 21.29 | 20.35 |
|       | 50RB-Low (0)     | 1770 (132572)   | 21.31 | 20.42 |
|       |                  | 1745 (132322)   | 21.25 | 20.28 |
|       |                  | 1720 (132072)   | 21.35 | 20.33 |
|       | 100RB (0)        | 1770 (132572)   | 21.28 | 20.33 |
|       |                  | 1745 (132322)   | 21.20 | 20.21 |
|       |                  | 1720 (132072)   | 21.26 | 20.29 |

**LTE Band66(DSI3)**

|        |                |                 |       |       |
|--------|----------------|-----------------|-------|-------|
| 1.4MHz | 1RB-High (5)   | 1779.3 (132665) | 20.13 | 20.43 |
|        |                | 1745 (132322)   | 20.16 | 20.40 |
|        |                | 1710.7 (131979) | 20.16 | 20.46 |
|        | 1RB-Middle (3) | 1779.3 (132665) | 20.25 | 20.61 |
|        |                | 1745 (132322)   | 20.24 | 20.53 |
|        |                | 1710.7 (131979) | 20.28 | 20.64 |
|        | 1RB-Low (0)    | 1779.3 (132665) | 20.12 | 20.44 |
|        |                | 1745 (132322)   | 20.13 | 20.44 |
|        |                | 1710.7 (131979) | 20.16 | 20.48 |
|        | 3RB-High (3)   | 1779.3 (132665) | 20.21 | 20.30 |
|        |                | 1745 (132322)   | 20.24 | 20.23 |
|        |                | 1710.7 (131979) | 20.30 | 20.33 |
|        | 3RB-Middle (1) | 1779.3 (132665) | 20.25 | 20.30 |
|        |                | 1745 (132322)   | 20.30 | 20.28 |
|        |                | 1710.7 (131979) | 20.33 | 20.39 |
|        | 3RB-Low (0)    | 1779.3 (132665) | 20.22 | 20.25 |
|        |                | 1745 (132322)   | 20.23 | 20.25 |
|        |                | 1710.7 (131979) | 20.27 | 20.31 |
|        | 6RB (0)        | 1779.3 (132665) | 20.18 | 20.34 |
|        |                | 1745 (132322)   | 20.20 | 20.33 |
|        |                | 1710.7 (131979) | 20.25 | 20.40 |
| 3MHz   | 1RB-High (14)  | 1778.5 (132657) | 20.21 | 20.52 |
|        |                | 1745 (132322)   | 20.21 | 20.59 |
|        |                | 1711.5 (131987) | 20.23 | 20.62 |
|        | 1RB-Middle (7) | 1778.5 (132657) | 20.42 | 20.84 |
|        |                | 1745 (132322)   | 20.40 | 20.80 |
|        |                | 1711.5 (131987) | 20.45 | 20.84 |
|        | 1RB-Low (0)    | 1778.5 (132657) | 20.22 | 20.64 |
|        |                | 1745 (132322)   | 20.22 | 20.56 |
|        |                | 1711.5 (131987) | 20.28 | 20.70 |
|        | 8RB-High (7)   | 1778.5 (132657) | 20.24 | 20.38 |
|        |                | 1745 (132322)   | 20.23 | 20.34 |
|        |                | 1711.5 (131987) | 20.29 | 20.38 |
|        | 8RB-Middle (4) | 1778.5 (132657) | 20.26 | 20.37 |
|        |                | 1745 (132322)   | 20.30 | 20.33 |
|        |                | 1711.5 (131987) | 20.31 | 20.43 |
|        | 8RB-Low (0)    | 1778.5 (132657) | 20.25 | 20.35 |
|        |                | 1745 (132322)   | 20.25 | 20.34 |
|        |                | 1711.5 (131987) | 20.29 | 20.41 |
|        | 15RB (0)       | 1778.5 (132657) | 20.22 | 20.29 |
|        |                | 1745 (132322)   | 20.20 | 20.25 |
|        |                | 1711.5 (131987) | 20.26 | 20.32 |

|       |                  |                 |       |       |
|-------|------------------|-----------------|-------|-------|
| 5MHz  | 1RB-High (24)    | 1777.5 (132647) | 20.07 | 20.55 |
|       |                  | 1745 (132322)   | 20.09 | 21.92 |
|       |                  | 1712.5 (131997) | 20.12 | 21.96 |
|       | 1RB-Middle (12)  | 1777.5 (132647) | 20.37 | 20.77 |
|       |                  | 1745 (132322)   | 20.36 | 20.88 |
|       |                  | 1712.5 (131997) | 20.42 | 20.85 |
|       | 1RB-Low (0)      | 1777.5 (132647) | 20.13 | 20.54 |
|       |                  | 1745 (132322)   | 20.07 | 21.90 |
|       |                  | 1712.5 (131997) | 20.12 | 21.95 |
|       | 12RB-High (13)   | 1777.5 (132647) | 20.23 | 20.27 |
|       |                  | 1745 (132322)   | 20.19 | 21.25 |
|       |                  | 1712.5 (131997) | 20.27 | 21.34 |
|       | 12RB-Middle (6)  | 1777.5 (132647) | 20.28 | 20.32 |
|       |                  | 1745 (132322)   | 20.27 | 21.30 |
|       |                  | 1712.5 (131997) | 20.31 | 21.38 |
|       | 12RB-Low (0)     | 1777.5 (132647) | 20.23 | 21.29 |
|       |                  | 1745 (132322)   | 20.22 | 21.23 |
|       |                  | 1712.5 (131997) | 20.26 | 21.32 |
|       | 25RB (0)         | 1777.5 (132647) | 20.20 | 21.31 |
|       |                  | 1745 (132322)   | 20.20 | 21.25 |
|       |                  | 1712.5 (131997) | 20.24 | 21.33 |
| 10MHz | 1RB-High (49)    | 1775 (132622)   | 20.14 | 20.56 |
|       |                  | 1745 (132322)   | 20.14 | 20.37 |
|       |                  | 1715 (132022)   | 20.16 | 20.52 |
|       | 1RB-Middle (24)  | 1775 (132622)   | 20.31 | 20.74 |
|       |                  | 1745 (132322)   | 20.31 | 20.65 |
|       |                  | 1715 (132022)   | 20.33 | 20.71 |
|       | 1RB-Low (0)      | 1775 (132622)   | 20.21 | 20.64 |
|       |                  | 1745 (132322)   | 20.18 | 20.49 |
|       |                  | 1715 (132022)   | 20.23 | 20.57 |
|       | 25RB-High (25)   | 1775 (132622)   | 20.24 | 20.30 |
|       |                  | 1745 (132322)   | 20.20 | 20.24 |
|       |                  | 1715 (132022)   | 20.26 | 20.33 |
|       | 25RB-Middle (12) | 1775 (132622)   | 20.29 | 20.37 |
|       |                  | 1745 (132322)   | 20.27 | 20.27 |
|       |                  | 1715 (132022)   | 20.25 | 20.32 |
|       | 25RB-Low (0)     | 1775 (132622)   | 20.31 | 20.37 |
|       |                  | 1745 (132322)   | 20.26 | 20.28 |
|       |                  | 1715 (132022)   | 20.29 | 20.33 |
|       | 50RB (0)         | 1775 (132622)   | 20.29 | 20.34 |
|       |                  | 1745 (132322)   | 20.26 | 20.27 |
|       |                  | 1715 (132022)   | 20.27 | 20.34 |

|       |                  |                 |       |       |
|-------|------------------|-----------------|-------|-------|
| 15MHz | 1RB-High (74)    | 1772.5 (132597) | 20.09 | 20.47 |
|       |                  | 1745 (132322)   | 20.12 | 20.43 |
|       |                  | 1717.5 (132047) | 20.13 | 20.49 |
|       | 1RB-Middle (37)  | 1772.5 (132597) | 20.29 | 20.77 |
|       |                  | 1745 (132322)   | 20.24 | 20.57 |
|       |                  | 1717.5 (132047) | 20.26 | 20.55 |
|       | 1RB-Low (0)      | 1772.5 (132597) | 20.15 | 20.62 |
|       |                  | 1745 (132322)   | 20.14 | 20.46 |
|       |                  | 1717.5 (132047) | 20.19 | 20.55 |
|       | 36RB-High (38)   | 1772.5 (132597) | 20.27 | 20.26 |
|       |                  | 1745 (132322)   | 20.23 | 20.20 |
|       |                  | 1717.5 (132047) | 20.27 | 20.30 |
|       | 36RB-Middle (19) | 1772.5 (132597) | 20.31 | 20.32 |
|       |                  | 1745 (132322)   | 20.25 | 20.27 |
|       |                  | 1717.5 (132047) | 20.27 | 20.29 |
|       | 36RB-Low (0)     | 1772.5 (132597) | 20.30 | 20.32 |
|       |                  | 1745 (132322)   | 20.27 | 20.25 |
|       |                  | 1717.5 (132047) | 20.26 | 20.32 |
|       | 75RB (0)         | 1772.5 (132597) | 20.29 | 20.31 |
|       |                  | 1745 (132322)   | 20.25 | 20.24 |
|       |                  | 1717.5 (132047) | 20.27 | 20.30 |
| 20MHz | 1RB-High (99)    | 1770 (132572)   | 20.06 | 20.39 |
|       |                  | 1745 (132322)   | 20.06 | 20.39 |
|       |                  | 1720 (132072)   | 20.07 | 20.50 |
|       | 1RB-Middle (50)  | 1770 (132572)   | 20.34 | 20.61 |
|       |                  | 1745 (132322)   | 20.35 | 20.40 |
|       |                  | 1720 (132072)   | 20.37 | 20.57 |
|       | 1RB-Low (0)      | 1770 (132572)   | 20.11 | 20.48 |
|       |                  | 1745 (132322)   | 20.07 | 20.49 |
|       |                  | 1720 (132072)   | 20.12 | 20.55 |
|       | 50RB-High (50)   | 1770 (132572)   | 20.21 | 20.28 |
|       |                  | 1745 (132322)   | 20.14 | 20.18 |
|       |                  | 1720 (132072)   | 20.27 | 20.34 |
|       | 50RB-Middle (25) | 1770 (132572)   | 20.29 | 20.37 |
|       |                  | 1745 (132322)   | 20.26 | 20.30 |
|       |                  | 1720 (132072)   | 20.35 | 20.31 |
|       | 50RB-Low (0)     | 1770 (132572)   | 20.33 | 20.39 |
|       |                  | 1745 (132322)   | 20.22 | 20.27 |
|       |                  | 1720 (132072)   | 20.23 | 20.30 |
|       | 100RB (0)        | 1770 (132572)   | 20.28 | 20.32 |
|       |                  | 1745 (132322)   | 20.21 | 20.20 |
|       |                  | 1720 (132072)   | 20.25 | 20.30 |

**LTE Band71(DSI1)**

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 5MHz  | 1RB-High (24)    | 695.5 (133447) | 23.74 | 23.02 |
|       |                  | 680.5 (133297) | 23.70 | 22.95 |
|       |                  | 665.5 (133147) | 23.70 | 22.91 |
|       | 1RB-Middle (12)  | 695.5 (133447) | 23.95 | 23.17 |
|       |                  | 680.5 (133297) | 23.96 | 23.24 |
|       |                  | 665.5 (133147) | 23.91 | 23.13 |
|       | 1RB-Low (0)      | 695.5 (133447) | 23.69 | 23.00 |
|       |                  | 680.5 (133297) | 23.69 | 22.93 |
|       |                  | 665.5 (133147) | 23.68 | 22.91 |
|       | 12RB-High (13)   | 695.5 (133447) | 22.90 | 21.89 |
|       |                  | 680.5 (133297) | 22.84 | 21.78 |
|       |                  | 665.5 (133147) | 22.83 | 21.83 |
|       | 12RB-Middle (6)  | 695.5 (133447) | 22.88 | 21.89 |
|       |                  | 680.5 (133297) | 22.88 | 21.84 |
|       |                  | 665.5 (133147) | 22.82 | 21.85 |
|       | 12RB-Low (0)     | 695.5 (133447) | 22.81 | 21.74 |
|       |                  | 680.5 (133297) | 22.79 | 21.77 |
|       |                  | 665.5 (133147) | 22.74 | 21.71 |
|       | 25RB (0)         | 695.5 (133447) | 22.89 | 21.89 |
|       |                  | 680.5 (133297) | 22.83 | 21.82 |
|       |                  | 665.5 (133147) | 22.82 | 21.82 |
| 10MHz | 1RB-High (49)    | 693 (132422)   | 23.21 | 22.59 |
|       |                  | 680.5 (133297) | 23.71 | 22.89 |
|       |                  | 668 (133172)   | 23.73 | 23.04 |
|       | 1RB-Middle (24)  | 693 (132422)   | 23.35 | 22.67 |
|       |                  | 680.5 (133297) | 23.86 | 23.15 |
|       |                  | 668 (133172)   | 23.92 | 23.04 |
|       | 1RB-Low (0)      | 693 (132422)   | 23.25 | 22.58 |
|       |                  | 680.5 (133297) | 23.75 | 23.00 |
|       |                  | 668 (133172)   | 23.77 | 22.95 |
|       | 25RB-High (25)   | 693 (132422)   | 23.25 | 21.80 |
|       |                  | 680.5 (133297) | 22.88 | 21.86 |
|       |                  | 668 (133172)   | 22.92 | 21.92 |
|       | 25RB-Middle (12) | 693 (132422)   | 22.32 | 21.80 |
|       |                  | 680.5 (133297) | 22.87 | 21.84 |
|       |                  | 668 (133172)   | 22.88 | 21.89 |
|       | 25RB-Low (0)     | 693 (132422)   | 22.36 | 21.86 |
|       |                  | 680.5 (133297) | 22.82 | 21.83 |
|       |                  | 668 (133172)   | 22.87 | 21.83 |
|       | 50RB (0)         | 693 (132422)   | 22.33 | 21.85 |
|       |                  | 680.5 (133297) | 22.87 | 21.83 |
|       |                  | 668 (133172)   | 22.89 | 21.89 |

|       |                  |                |       |       |
|-------|------------------|----------------|-------|-------|
| 15MHz | 1RB-High (74)    | 690.5 (133397) | 23.76 | 23.06 |
|       |                  | 680.5 (133297) | 23.69 | 22.85 |
|       |                  | 670.5 (133197) | 23.70 | 22.94 |
|       | 1RB-Middle (37)  | 690.5 (133397) | 23.78 | 22.97 |
|       |                  | 680.5 (133297) | 23.82 | 23.12 |
|       |                  | 670.5 (133197) | 23.83 | 23.11 |
|       | 1RB-Low (0)      | 690.5 (133397) | 23.75 | 23.02 |
|       |                  | 680.5 (133297) | 23.75 | 23.01 |
|       |                  | 670.5 (133197) | 23.76 | 23.00 |
|       | 36RB-High (38)   | 690.5 (133397) | 22.91 | 21.85 |
|       |                  | 680.5 (133297) | 22.89 | 21.82 |
|       |                  | 670.5 (133197) | 22.87 | 21.86 |
|       | 36RB-Middle (19) | 690.5 (133397) | 22.92 | 21.86 |
|       |                  | 680.5 (133297) | 22.87 | 21.83 |
|       |                  | 670.5 (133197) | 22.88 | 21.83 |
|       | 36RB-Low (0)     | 690.5 (133397) | 22.89 | 21.85 |
|       |                  | 680.5 (133297) | 22.80 | 21.78 |
|       |                  | 670.5 (133197) | 22.86 | 21.84 |
|       | 75RB (0)         | 690.5 (133397) | 22.90 | 21.87 |
|       |                  | 680.5 (133297) | 22.84 | 21.82 |
|       |                  | 670.5 (133197) | 22.87 | 21.88 |
| 20MHz | 1RB-High (99)    | 688 (133372)   | 23.88 | 23.02 |
|       |                  | 683 (133322)   | 23.80 | 22.99 |
|       |                  | 673 (133222)   | 23.81 | 23.09 |
|       | 1RB-Middle (50)  | 688 (133372)   | 23.99 | 23.26 |
|       |                  | 683 (133322)   | 23.94 | 23.39 |
|       |                  | 673 (133222)   | 23.98 | 23.37 |
|       | 1RB-Low (0)      | 688 (133372)   | 23.89 | 23.15 |
|       |                  | 683 (133322)   | 23.89 | 23.14 |
|       |                  | 673 (133222)   | 23.92 | 23.03 |
|       | 50RB-High (50)   | 688 (133372)   | 23.10 | 22.05 |
|       |                  | 683 (133322)   | 22.99 | 21.96 |
|       |                  | 673 (133222)   | 23.09 | 22.07 |
|       | 50RB-Middle (25) | 688 (133372)   | 23.09 | 22.07 |
|       |                  | 683 (133322)   | 23.07 | 22.02 |
|       |                  | 673 (133222)   | 23.08 | 22.07 |
|       | 50RB-Low (0)     | 688 (133372)   | 23.07 | 22.02 |
|       |                  | 683 (133322)   | 22.97 | 21.93 |
|       |                  | 673 (133222)   | 23.03 | 22.04 |
|       | 100RB (0)        | 688 (133372)   | 23.06 | 22.02 |
|       |                  | 683 (133322)   | 22.94 | 21.93 |
|       |                  | 673 (133222)   | 23.01 | 22.04 |

## 11.4 Wi-Fi and BT Measurement result

The maximum output power of BT is 7.67dBm.

The maximum tune up of BT is 9dBm.

For WIFI Antenna there are two of tune-up power, Receiver off and Receiver on:

Receiver off

| 802.11b(dBm)       |       |
|--------------------|-------|
| Channel\data rate  | 1Mbps |
| 11(2462MHz)        | 19.34 |
| 6(2437MHz)         | 19.49 |
| 1(2412MHz)         | 20.01 |
| Tune up            | 21.00 |
| 802.11g(dBm)       |       |
| Channel\data rate  | 6Mbps |
| 11(2462MHz)        | 18.35 |
| 6(2437MHz)         | 17.77 |
| 1(2412MHz)         | 18.30 |
| Tune up            | 19.50 |
| 802.11n(dBm)-20MHz |       |
| Channel\data rate  | MCS0  |
| 11(2462MHz)        | 18.16 |
| 6(2437MHz)         | 18.18 |
| 1(2412MHz)         | 18.75 |
| Tune up            | 19.50 |
| 802.11n(dBm)-40MHz |       |
| Channel\data rate  | MCS0  |
| 9(2452MHz)         | 17.52 |
| 6(2437MHz)         | 18.15 |
| 3(2422MHz)         | 18.49 |
| Tune up            | 19.50 |

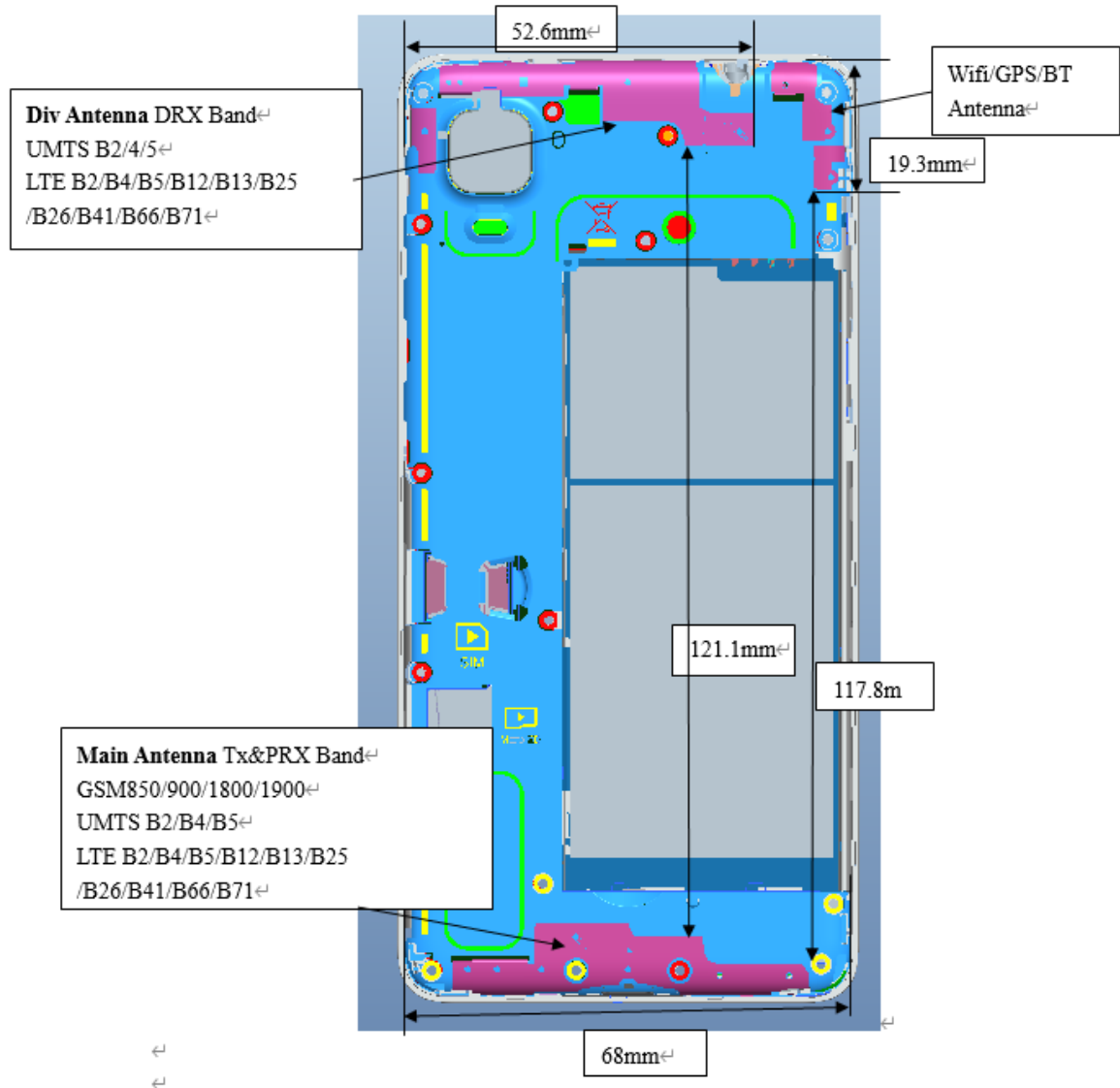
Receiver on

| 802.11b(dBm)       |       |
|--------------------|-------|
| Channel\data rate  | 1Mbps |
| 11(2462MHz)        | 16.62 |
| 6(2437MHz)         | 16.61 |
| 1(2412MHz)         | 17.15 |
| Tune up            | 18.00 |
| 802.11g(dBm)       |       |
| Channel\data rate  | 6Mbps |
| 11(2462MHz)        | 16.66 |
| 6(2437MHz)         | 16.68 |
| 1(2412MHz)         | 17.25 |
| Tune up            | 18.00 |
| 802.11n(dBm)-20MHz |       |
| Channel\data rate  | MCS0  |
| 11(2462MHz)        | 16.56 |
| 6(2437MHz)         | 16.54 |
| 1(2412MHz)         | 17.06 |
| Tune up            | 18.00 |
| 802.11n(dBm)-40MHz |       |
| Channel\data rate  | MCS0  |
| 9(2452MHz)         | 16.02 |
| 6(2437MHz)         | 16.52 |
| 3(2422MHz)         | 16.88 |
| Tune up            | 18.00 |

## 12 Antenna Location

### 12.1 Transmit Antenna Separation Distances

The location of the antennas inside mobile phone is shown below:↵



Picture 12.1 Antenna Locations

### 12.3 SAR Measurement Positions

According to the KDB941225 D06 Hot Spot SAR v01, the edges with less than 2.5 cm distance to the antennas need to be tested for SAR.

| SAR measurement positions |       |      |           |            |          |             |
|---------------------------|-------|------|-----------|------------|----------|-------------|
| Mode                      | Front | Rear | Left edge | Right edge | Top edge | Bottom edge |
| Main antenna              | Yes   | Yes  | Yes       | Yes        | No       | Yes         |
| WLAN 2.4G                 | Yes   | Yes  | Yes       | No         | Yes      | No          |

### 12.4 Standalone SAR Test Exclusion Considerations

Standalone 1-g head or body SAR evaluation by measurement or numerical simulation is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied. The 1-g SAR test exclusion threshold for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$  for 1-g SAR, where

- $f(\text{GHz})$  is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

**Table 12.1: Standalone SAR test exclusion considerations**

| Band/Mode   | F(GHz) | Position | SAR test exclusion threshold(mW) | RF output power |       | SAR test exclusion |
|-------------|--------|----------|----------------------------------|-----------------|-------|--------------------|
|             |        |          |                                  | dBm             | mW    |                    |
| Bluetooth   | 2.441  | Head     | 9.60                             | 9               | 7.9   | Yes                |
|             |        | Body     | 19.20                            | 9               | 7.9   | Yes                |
| 2.4GHz WLAN | 2.45   | Head     | 9.58                             | 18              | 63.1  | No                 |
|             |        | Body     | 19.17                            | 21              | 125.9 | No                 |

## 13 SAR Test Result

### Note:

#### KDB 447498 D01 General RF Exposure Guidance:

For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)\*Tune-up Scaling Factor

For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)\* Duty Cycle scaling factor \* Tune-up scaling factor

Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

$\leq 0.8$  W/kg or  $2.0$  W/kg, for 1-g or 10-g respectively, when the transmission band is  $\leq 100$  MHz

$\leq 0.6$  W/kg or  $1.5$  W/kg, for 1-g or 10-g respectively, when the transmission band is between  $100$  MHz and  $200$  MHz

$\leq 0.4$  W/kg or  $1.0$  W/kg, for 1-g or 10-g respectively, when the transmission band is  $\geq 200$  MHz

#### KDB 648474 D04 Handset SAR:

With headset attached, when the reported SAR for body-worn accessory, measured without a headset connected to the handset, is  $> 1.2$  W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

#### KDB 941225 D01 SAR test for 3G devices:

When the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq \frac{1}{4}$  dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is  $\leq 1.2$  W/kg, SAR measurement is not required for the secondary mode.

#### KDB 941225 D05 SAR for LTE Devices:

SAR test reduction is applied using the following criteria:

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel.

When the reported SAR is  $> 0.8$  W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50% RB configuration for that channel.

Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are  $> 0.8$  W/kg. Testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation  $< 1.45$  W/kg.

Testing for 16-QAM modulation is not required because the reported SAR for QPSK is  $< 1.45$  W/Kg and its output power is not more than  $0.5$  dB higher than that of QPSK.

Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is  $< 1.45$  W/Kg and its output power is not more than  $0.5$  dB higher than that of the highest channel bandwidth.

For LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the

group of overlapping channels should be selected for testing; therefore, the requirement for H, M and L channels may not fully apply.

**KDB 941225 D06 Hot Spot SAR:**

The hotspot mode and body-worn accessory SAR test configurations may overlap for handsets. When the same wireless mode transmission configurations for voice and data are required for SAR measurements, the more conservative configuration with a smaller separation distance should be tested for the overlapping SAR configurations. This typically applies to the back and front surfaces of a handset when SAR is required for both hotspot mode and body-worn accessory exposure conditions.

**KDB 248227 D01 SAR meas for 802.11:**

SAR test reduction for 802.11 Wi-Fi transmission mode configurations are considered separately for DSSS and OFDM. An initial test position is determined to reduce the number of tests required for certain exposure configurations with multiple test positions. An initial test configuration is determined for each frequency band and aggregated band according to maximum output power, channel bandwidth, wireless mode configurations and other operating parameters to streamline the measurement requirements. For 2.4 GHz DSSS, either the initial test position or DSSS procedure is applied to reduce the number of SAR tests; these are mutually exclusive. For OFDM, an initial test position is only applicable to next to the ear, UMPC mini-tablet and hotspot mode configurations, which is tested using the initial test configuration to facilitate test reduction. For other exposure conditions with a fixed test position, SAR test reduction is determined using only the initial test configuration.

To determine the initial test position, Area Scans were performed to determine the position with the Maximum Value of SAR (measured). The position that produced the highest Maximum Value of SAR is considered the worst case position; thus used as the initial test position.

The multiple test positions require SAR measurements in head, hotspot mode or UMPC mini-tablet configurations may be reduced according to the highest reported SAR determined using the initial test position(s) by applying the DSSS or OFDM SAR measurement procedures in the required wireless mode test configuration(s). The initial test position(s) is measured using the highest measured maximum output power channel in the required wireless mode test configuration(s).

When the reported SAR for the initial test position is:

$\leq 0.4$  W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and wireless mode combination within the frequency band or aggregated band. DSSS and OFDM configurations are considered separately according to the required SAR procedures.

$> 0.4$  W/kg, SAR is repeated using the same wireless mode test configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position, on the highest maximum output power channel, until the reported SAR is  $\leq 0.8$  W/kg or all required test positions are tested.

- For subsequent test positions with equivalent test separation distance or when exposure is dominated by coupling conditions, the position for maximum coupling condition should be tested.
- When it is unclear, all equivalent conditions must be tested.

For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is  $> 0.8$  W/kg, measure the SAR for these positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is  $\leq 1.2$  W/kg

or all required test channels are considered.

#### Duty Cycle

| Mode              | Duty Cycle |
|-------------------|------------|
| Speech for GSM    | 1:8.3      |
| GPRS&EGPRS 1 Slot | 1:8.3      |
| GPRS&EGPRS 2 Slot | 1:4        |
| GPRS&EGPRS 3 Slot | 1:2.67     |
| GPRS&EGPRS 4 Slot | 1:2        |
| WCDMA&LTE FDD     | 1:1        |
| TDD PC3           | 1:1.58     |
| TDD PC2           | 1:2.309    |

**Ambient Temperature: 21.5-23.5 °C Liquid Temperature: 21.5-23.5 °C**

#### Note

The **B1** is the battery of CAB2880000C7 by VEKEN

The **B2** is the battery of CAB2880001C1 by BYD

## 13.1 SAR results

| RF Exposure Conditions | Frequency Band | Channel Number | Frequency (MHz) | Mode/RB    | Test setup  | Distance | Figure No. | EUT Measured Power (dBm) | Tune up (dBm) | Measured SAR 1g (W/kg) | Calculated SAR 1g (W/kg) | Measured SAR 10g (W/kg) | Calculated SAR 10g (W/kg) | Power Drift |
|------------------------|----------------|----------------|-----------------|------------|-------------|----------|------------|--------------------------|---------------|------------------------|--------------------------|-------------------------|---------------------------|-------------|
| Head                   | GSM850         | 251            | 848.8           | GSM        | Cheek Left  | 0mm      | FIG A.1    | 31.76                    | 33.30         | 0.185                  | 0.26                     | 0.147                   | 0.21                      | -0.18       |
| Head                   | GSM850         | 190            | 836.6           | GSM        | Cheek Left  | 0mm      | \          | 31.69                    | 33.30         | 0.177                  | 0.26                     | 0.143                   | 0.21                      | 0.05        |
| Head                   | GSM850         | 128            | 824.2           | GSM        | Cheek Left  | 0mm      | \          | 31.68                    | 33.30         | 0.143                  | 0.21                     | 0.114                   | 0.17                      | 0.10        |
| Head                   | GSM850         | 190            | 836.6           | GSM        | Tilt Left   | 0mm      | \          | 31.69                    | 33.30         | 0.167                  | 0.24                     | 0.107                   | 0.16                      | 0.05        |
| Head                   | GSM850         | 190            | 836.6           | GSM        | Cheek Right | 0mm      | \          | 31.69                    | 33.30         | 0.146                  | 0.21                     | 0.119                   | 0.17                      | 0.19        |
| Head                   | GSM850         | 190            | 836.6           | GSM        | Tilt Right  | 0mm      | \          | 31.69                    | 33.30         | 0.137                  | 0.20                     | 0.111                   | 0.16                      | 0.12        |
| Body                   | GSM850         | 190            | 836.6           | GPRS(4TX)  | Front       | 10mm     | \          | 26.73                    | 27.50         | 0.148                  | 0.18                     | 0.086                   | 0.10                      | 0.13        |
| Body                   | GSM850         | 251            | 848.8           | GPRS(4TX)  | Rear        | 10mm     | \          | 26.84                    | 27.50         | 0.252                  | 0.29                     | 0.147                   | 0.17                      | -0.07       |
| Body                   | GSM850         | 190            | 836.6           | GPRS(4TX)  | Rear        | 10mm     | FIG A.2    | 26.73                    | 27.50         | 0.279                  | 0.33                     | 0.163                   | 0.19                      | 0.10        |
| Body                   | GSM850         | 128            | 824.2           | GPRS(4TX)  | Rear        | 10mm     | \          | 26.68                    | 27.50         | 0.236                  | 0.29                     | 0.137                   | 0.17                      | -0.18       |
| Body                   | GSM850         | 190            | 836.6           | GPRS(4TX)  | Left        | 10mm     | \          | 26.73                    | 27.50         | 0.064                  | 0.08                     | 0.035                   | 0.04                      | -0.15       |
| Body                   | GSM850         | 190            | 836.6           | GPRS(4TX)  | Right       | 10mm     | \          | 26.73                    | 27.50         | 0.057                  | 0.07                     | 0.030                   | 0.04                      | 0.11        |
| Body                   | GSM850         | 190            | 836.6           | GPRS(4TX)  | Bottom      | 10mm     | \          | 26.73                    | 27.50         | 0.107                  | 0.13                     | 0.054                   | 0.06                      | -0.17       |
| Body                   | GSM850         | 190            | 836.6           | EGPRS(4TX) | Rear        | 10mm     | \          | 26.73                    | 27.50         | 0.236                  | 0.28                     | 0.137                   | 0.16                      | -0.11       |
| Head                   | GSM1900        | 810            | 1909.8          | GSM        | Cheek Left  | 0mm      | FIG A.3    | 28.22                    | 29.70         | 0.121                  | 0.17                     | 0.079                   | 0.11                      | 0.19        |
| Head                   | GSM1900        | 661            | 1880            | GSM        | Cheek Left  | 0mm      | \          | 28.38                    | 29.70         | 0.095                  | 0.13                     | 0.064                   | 0.09                      | -0.15       |
| Head                   | GSM1900        | 512            | 1850.2          | GSM        | Cheek Left  | 0mm      | \          | 28.47                    | 29.70         | 0.112                  | 0.15                     | 0.072                   | 0.10                      | -0.13       |
| Head                   | GSM1900        | 661            | 1880            | GSM        | Tilt Left   | 0mm      | \          | 28.38                    | 29.70         | 0.035                  | 0.05                     | 0.025                   | 0.03                      | 0.08        |
| Head                   | GSM1900        | 661            | 1880            | GSM        | Cheek Right | 0mm      | \          | 28.38                    | 29.70         | 0.086                  | 0.12                     | 0.058                   | 0.08                      | 0.16        |
| Head                   | GSM1900        | 661            | 1880            | GSM        | Tilt Right  | 0mm      | \          | 28.38                    | 29.70         | 0.051                  | 0.07                     | 0.035                   | 0.05                      | -0.11       |
| Body                   | GSM1900        | 661            | 1880            | GPRS(3TX)  | Front       | 10mm     | \          | 22.95                    | 23.00         | 0.149                  | 0.15                     | 0.096                   | 0.10                      | 0.16        |
| Body                   | GSM1900        | 810            | 1909.8          | GPRS(3TX)  | Rear        | 10mm     | \          | 22.86                    | 23.00         | 0.396                  | 0.41                     | 0.207                   | 0.21                      | -0.03       |
| Body                   | GSM1900        | 661            | 1880            | GPRS(3TX)  | Rear        | 10mm     | FIG A.4    | 22.95                    | 23.00         | 0.417                  | 0.42                     | 0.219                   | 0.22                      | 0.01        |
| Body                   | GSM1900        | 512            | 1850.2          | GPRS(3TX)  | Rear        | 10mm     | \          | 22.96                    | 23.00         | 0.406                  | 0.41                     | 0.211                   | 0.21                      | 0.05        |
| Body                   | GSM1900        | 661            | 1880            | GPRS(3TX)  | Left        | 10mm     | \          | 22.95                    | 23.00         | 0.026                  | 0.03                     | 0.011                   | 0.01                      | 0.11        |
| Body                   | GSM1900        | 661            | 1880            | GPRS(3TX)  | Right       | 10mm     | \          | 22.95                    | 23.00         | 0.083                  | 0.08                     | 0.049                   | 0.05                      | 0.09        |
| Body                   | GSM1900        | 661            | 1880            | GPRS(3TX)  | Bottom      | 10mm     | \          | 22.95                    | 23.00         | 0.270                  | 0.27                     | 0.149                   | 0.15                      | -0.08       |
| Body                   | GSM1900        | 661            | 1880            | EGPRS(3TX) | Rear        | 10mm     | \          | 22.94                    | 23.00         | 0.324                  | 0.33                     | 0.173                   | 0.18                      | 0.12        |
| Body                   | GSM1900        | 661            | 1880            | GPRS(3TX)  | Front       | 15mm     | \          | 25.01                    | 26.00         | 0.206                  | 0.26                     | 0.136                   | 0.17                      | 0.03        |
| Body                   | GSM1900        | 810            | 1909.8          | GPRS(3TX)  | Rear        | 15mm     | FIG A.5    | 24.94                    | 26.00         | 0.392                  | 0.50                     | 0.235                   | 0.30                      | 0.02        |
| Body                   | GSM1900        | 661            | 1880            | GPRS(3TX)  | Rear        | 15mm     | \          | 25.01                    | 26.00         | 0.381                  | 0.48                     | 0.232                   | 0.29                      | -0.09       |
| Body                   | GSM1900        | 512            | 1850.2          | GPRS(3TX)  | Rear        | 15mm     | \          | 25.13                    | 26.00         | 0.337                  | 0.41                     | 0.205                   | 0.25                      | -0.06       |
| Body                   | GSM1900        | 810            | 1909.8          | EGPRS(3TX) | Rear        | 15mm     | \          | 24.86                    | 26.00         | 0.368                  | 0.48                     | 0.224                   | 0.29                      | 0.16        |



| RF Exposure Conditions | Frequency Band | Channel Number | Frequency (MHz) | Mode/RB | Test setup  | Distance | Figure No. | EUT Measured Power (dBm) | Tune up (dBm) | Measured SAR 1g (W/kg) | Calculated SAR 1g (W/kg) | Measured SAR 10g (W/kg) | Calculated SAR 10g (W/kg) | Power Drift |
|------------------------|----------------|----------------|-----------------|---------|-------------|----------|------------|--------------------------|---------------|------------------------|--------------------------|-------------------------|---------------------------|-------------|
| Head                   | WCDMA 850      | 4233           | 846.6           | RMC     | Cheek Left  | 0mm      | \          | 24.08                    | 25.00         | 0.233                  | <b>0.29</b>              | 0.181                   | <b>0.22</b>               | -0.16       |
| Head                   | WCDMA 850      | 4183           | 836.6           | RMC     | Cheek Left  | 0mm      | FIG A.6    | 24.09                    | 25.00         | 0.249                  | <b>0.31</b>              | 0.194                   | <b>0.24</b>               | -0.13       |
| Head                   | WCDMA 850      | 4132           | 826.4           | RMC     | Cheek Left  | 0mm      | \          | 24.10                    | 25.00         | 0.236                  | <b>0.29</b>              | 0.185                   | <b>0.23</b>               | 0.13        |
| Head                   | WCDMA 850      | 4183           | 836.6           | RMC     | Tilt Left   | 0mm      | \          | 24.09                    | 25.00         | 0.169                  | <b>0.21</b>              | 0.145                   | <b>0.18</b>               | -0.05       |
| Head                   | WCDMA 850      | 4183           | 836.6           | RMC     | Cheek Right | 0mm      | \          | 24.09                    | 25.00         | 0.165                  | <b>0.20</b>              | 0.137                   | <b>0.17</b>               | 0.03        |
| Head                   | WCDMA 850      | 4183           | 836.6           | RMC     | Tilt Right  | 0mm      | \          | 24.09                    | 25.00         | 0.162                  | <b>0.20</b>              | 0.131                   | <b>0.16</b>               | -0.04       |
| Body                   | WCDMA 850      | 4183           | 836.6           | RMC     | Front       | 10mm     | \          | 24.09                    | 25.00         | 0.185                  | <b>0.23</b>              | 0.104                   | <b>0.13</b>               | 0.09        |
| Body                   | WCDMA 850      | 4233           | 846.6           | RMC     | Rear        | 10mm     | \          | 24.08                    | 25.00         | 0.329                  | <b>0.41</b>              | 0.181                   | <b>0.22</b>               | -0.15       |
| Body                   | WCDMA 850      | 4183           | 836.6           | RMC     | Rear        | 10mm     | FIG A.7    | 24.09                    | 25.00         | 0.361                  | <b>0.45</b>              | 0.197                   | <b>0.24</b>               | -0.07       |
| Body                   | WCDMA 850      | 4132           | 826.4           | RMC     | Rear        | 10mm     | \          | 24.10                    | 25.00         | 0.357                  | <b>0.44</b>              | 0.196                   | <b>0.24</b>               | -0.05       |
| Body                   | WCDMA 850      | 4183           | 836.6           | RMC     | Left        | 10mm     | \          | 24.09                    | 25.00         | 0.061                  | <b>0.08</b>              | 0.031                   | <b>0.04</b>               | -0.02       |
| Body                   | WCDMA 850      | 4183           | 836.6           | RMC     | Right       | 10mm     | \          | 24.09                    | 25.00         | <0.01                  | <b>&lt;0.01</b>          | <0.01                   | <b>&lt;0.01</b>           |             |
| Body                   | WCDMA 850      | 4183           | 836.6           | RMC     | Bottom      | 10mm     | \          | 24.09                    | 25.00         | 0.127                  | <b>0.16</b>              | 0.049                   | <b>0.06</b>               | 0.09        |
| Head                   | WCDMA1700      | 1412           | 1732.4          | RMC     | Cheek Left  | 0mm      | \          | 23.22                    | 25.00         | 0.246                  | <b>0.37</b>              | 0.156                   | <b>0.24</b>               | -0.05       |
| Head                   | WCDMA1700      | 1412           | 1732.4          | RMC     | Tilt Left   | 0mm      | \          | 23.22                    | 25.00         | 0.088                  | <b>0.13</b>              | 0.057                   | <b>0.09</b>               | 0.03        |
| Head                   | WCDMA1700      | 1513           | 1752.6          | RMC     | Cheek Right | 0mm      | \          | 23.29                    | 25.00         | 0.330                  | <b>0.49</b>              | 0.211                   | <b>0.31</b>               | -0.05       |
| Head                   | WCDMA1700      | 1412           | 1732.4          | RMC     | Cheek Right | 0mm      | FIG A.8    | 23.22                    | 25.00         | 0.399                  | <b>0.60</b>              | 0.253                   | <b>0.38</b>               | 0.19        |
| Head                   | WCDMA1700      | 1312           | 1712.4          | RMC     | Cheek Right | 0mm      | \          | 23.11                    | 25.00         | 0.324                  | <b>0.50</b>              | 0.208                   | <b>0.32</b>               | 0.07        |
| Head                   | WCDMA1700      | 1412           | 1732.4          | RMC     | Tilt Right  | 0mm      | \          | 23.22                    | 25.00         | 0.106                  | <b>0.16</b>              | 0.071                   | <b>0.11</b>               | 0.03        |
| Body                   | WCDMA1700      | 1412           | 1732.5          | RMC     | Front       | 10mm     | \          | 20.21                    | 22.00         | 0.251                  | <b>0.38</b>              | 0.158                   | <b>0.24</b>               | 0.02        |
| Body                   | WCDMA1700      | 1513           | 1752.6          | RMC     | Rear        | 10mm     | FIG A.9    | 20.23                    | 22.00         | 0.500                  | <b>0.75</b>              | 0.272                   | <b>0.41</b>               | 0.10        |
| Body                   | WCDMA1700      | 1412           | 1732.4          | RMC     | Rear        | 10mm     | \          | 20.21                    | 22.00         | 0.486                  | <b>0.73</b>              | 0.266                   | <b>0.40</b>               | 0.13        |
| Body                   | WCDMA1700      | 1312           | 1712.4          | RMC     | Rear        | 10mm     | \          | 20.15                    | 22.00         | 0.464                  | <b>0.71</b>              | 0.257                   | <b>0.39</b>               | 0.03        |
| Body                   | WCDMA1700      | 1412           | 1732.5          | RMC     | Left        | 10mm     | \          | 20.21                    | 22.00         | 0.047                  | <b>0.07</b>              | 0.027                   | <b>0.04</b>               | -0.08       |
| Body                   | WCDMA1700      | 1412           | 1732.5          | RMC     | Right       | 10mm     | \          | 20.21                    | 22.00         | 0.163                  | <b>0.25</b>              | 0.095                   | <b>0.14</b>               | -0.13       |
| Body                   | WCDMA1700      | 1412           | 1732.5          | RMC     | Bottom      | 10mm     | \          | 20.21                    | 22.00         | 0.312                  | <b>0.47</b>              | 0.177                   | <b>0.27</b>               | 0.02        |
| Body                   | WCDMA1700      | 1412           | 1732.5          | RMC     | Front       | 15mm     | \          | 21.71                    | 23.50         | 0.246                  | <b>0.37</b>              | 0.167                   | <b>0.25</b>               | 0.17        |
| Body                   | WCDMA1700      | 1513           | 1752.6          | RMC     | Rear        | 15mm     | FIG A.10   | 21.75                    | 23.50         | 0.376                  | <b>0.56</b>              | 0.223                   | <b>0.33</b>               | -0.13       |
| Body                   | WCDMA1700      | 1412           | 1732.5          | RMC     | Rear        | 15mm     | \          | 21.71                    | 23.50         | 0.350                  | <b>0.53</b>              | 0.208                   | <b>0.31</b>               | 0.06        |
| Body                   | WCDMA1700      | 1312           | 1712.4          | RMC     | Rear        | 15mm     | \          | 21.61                    | 23.50         | 0.362                  | <b>0.56</b>              | 0.218                   | <b>0.34</b>               | 0.16        |
| Head                   | WCDMA1900      | 9538           | 1907.6          | RMC     | Cheek Left  | 0mm      | \          | 22.88                    | 24.50         | 0.230                  | <b>0.33</b>              | 0.150                   | <b>0.22</b>               | -0.19       |
| Head                   | WCDMA1900      | 9400           | 1880            | RMC     | Cheek Left  | 0mm      | FIG A.11   | 23.01                    | 24.50         | 0.258                  | <b>0.36</b>              | 0.166                   | <b>0.23</b>               | 0.14        |
| Head                   | WCDMA1900      | 9262           | 1852.4          | RMC     | Cheek Left  | 0mm      | \          | 23.05                    | 24.50         | 0.247                  | <b>0.34</b>              | 0.162                   | <b>0.23</b>               | 0.06        |
| Head                   | WCDMA1900      | 9400           | 1880            | RMC     | Tilt Left   | 0mm      | \          | 23.01                    | 24.50         | 0.072                  | <b>0.10</b>              | 0.048                   | <b>0.07</b>               | -0.04       |
| Head                   | WCDMA1900      | 9400           | 1880            | RMC     | Cheek Right | 0mm      | \          | 23.01                    | 24.50         | 0.207                  | <b>0.29</b>              | 0.141                   | <b>0.20</b>               | 0.14        |
| Head                   | WCDMA1900      | 9400           | 1880            | RMC     | Tilt Right  | 0mm      | \          | 23.01                    | 24.50         | 0.105                  | <b>0.15</b>              | 0.068                   | <b>0.10</b>               | -0.11       |
| Body                   | WCDMA1900      | 9400           | 1880            | RMC     | Front       | 10mm     | \          | 19.96                    | 21.50         | 0.170                  | <b>0.24</b>              | 0.107                   | <b>0.15</b>               | -0.08       |
| Body                   | WCDMA1900      | 9538           | 1907.6          | RMC     | Rear        | 10mm     | \          | 19.85                    | 21.50         | 0.408                  | <b>0.60</b>              | 0.218                   | <b>0.32</b>               | -0.11       |
| Body                   | WCDMA1900      | 9400           | 1880            | RMC     | Rear        | 10mm     | \          | 19.96                    | 21.50         | 0.458                  | <b>0.65</b>              | 0.242                   | <b>0.34</b>               | 0.07        |
| Body                   | WCDMA1900      | 9262           | 1852.4          | RMC     | Rear        | 10mm     | FIG A.12   | 19.95                    | 21.50         | 0.462                  | <b>0.66</b>              | 0.248                   | <b>0.35</b>               | 0.04        |
| Body                   | WCDMA1900      | 9400           | 1880            | RMC     | Left        | 10mm     | \          | 19.96                    | 21.50         | 0.077                  | <b>0.11</b>              | 0.047                   | <b>0.07</b>               | 0.06        |
| Body                   | WCDMA1900      | 9400           | 1880            | RMC     | Right       | 10mm     | \          | 19.96                    | 21.50         | 0.123                  | <b>0.18</b>              | 0.073                   | <b>0.10</b>               | -0.09       |
| Body                   | WCDMA1900      | 9400           | 1880            | RMC     | Bottom      | 10mm     | \          | 19.96                    | 21.50         | 0.293                  | <b>0.42</b>              | 0.153                   | <b>0.22</b>               | 0.19        |
| Body                   | WCDMA1900      | 9400           | 1880            | RMC     | Front       | 15mm     | \          | 21.94                    | 23.50         | 0.160                  | <b>0.23</b>              | 0.102                   | <b>0.15</b>               | -0.07       |
| Body                   | WCDMA1900      | 9538           | 1907.6          | RMC     | Rear        | 15mm     | \          | 21.88                    | 23.50         | 0.282                  | <b>0.41</b>              | 0.165                   | <b>0.24</b>               | 0.07        |
| Body                   | WCDMA1900      | 9400           | 1880            | RMC     | Rear        | 15mm     | \          | 21.94                    | 23.50         | 0.285                  | <b>0.41</b>              | 0.167                   | <b>0.24</b>               | -0.10       |
| Body                   | WCDMA1900      | 9262           | 1852.4          | RMC     | Rear        | 15mm     | FIG A.13   | 21.98                    | 23.50         | 0.322                  | <b>0.46</b>              | 0.187                   | <b>0.27</b>               | -0.05       |

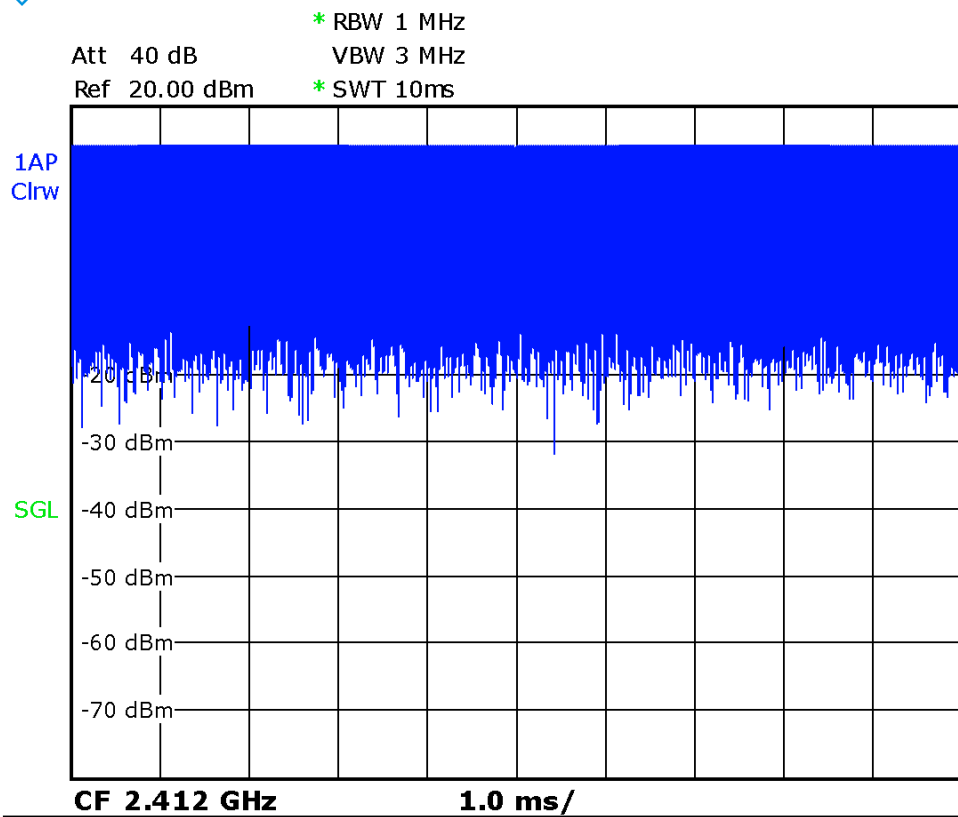
| RF Exposure Conditions | Frequency Band | Channel Number | Frequency (MHz) | Mode/IRB | Test setup  | Distance | Figure No. | EUT Measured Power (dBm) | Tune up (dBm) | Measured SAR 1g (W/kg) | Calculated SAR 1g (W/kg) | Measured SAR 10g (W/kg) | Calculated SAR 10g (W/kg) | Power Drift |
|------------------------|----------------|----------------|-----------------|----------|-------------|----------|------------|--------------------------|---------------|------------------------|--------------------------|-------------------------|---------------------------|-------------|
| Head                   | LTE Band12     | 23060          | 704             | 1RB-Mid  | Cheek Left  | 0mm      | FIG A.14   | 24.15                    | 25.00         | 0.162                  | 0.20                     | 0.130                   | 0.16                      | -0.10       |
| Head                   | LTE Band12     | 23060          | 704             | 1RB-Mid  | Tilt Left   | 0mm      | \          | 24.15                    | 25.00         | 0.071                  | 0.09                     | 0.058                   | 0.07                      | 0.00        |
| Head                   | LTE Band12     | 23060          | 704             | 1RB-Mid  | Cheek Right | 0mm      | \          | 24.15                    | 25.00         | 0.083                  | 0.10                     | 0.066                   | 0.08                      | -0.01       |
| Head                   | LTE Band12     | 23060          | 704             | 1RB-Mid  | Tilt Right  | 0mm      | \          | 24.15                    | 25.00         | 0.049                  | 0.06                     | 0.040                   | 0.05                      | 0.16        |
| Head                   | LTE Band12     | 23060          | 704             | 25RB-Low | Cheek Left  | 0mm      | \          | 23.25                    | 24.00         | 0.089                  | 0.11                     | 0.071                   | 0.08                      | -0.13       |
| Head                   | LTE Band12     | 23060          | 704             | 25RB-Low | Tilt Left   | 0mm      | \          | 23.25                    | 24.00         | 0.056                  | 0.07                     | 0.045                   | 0.05                      | 0.12        |
| Head                   | LTE Band12     | 23060          | 704             | 25RB-Low | Cheek Right | 0mm      | \          | 23.25                    | 24.00         | 0.064                  | 0.08                     | 0.051                   | 0.06                      | 0.00        |
| Head                   | LTE Band12     | 23060          | 704             | 25RB-Low | Tilt Right  | 0mm      | \          | 23.25                    | 24.00         | 0.037                  | 0.04                     | 0.030                   | 0.04                      | 0.03        |
| Body                   | LTE Band12     | 23060          | 704             | 1RB-Mid  | Front       | 10mm     | \          | 24.15                    | 25.00         | 0.164                  | 0.20                     | 0.128                   | 0.16                      | 0.19        |
| Body                   | LTE Band12     | 23060          | 704             | 1RB-Mid  | Rear        | 10mm     | FIG A.15   | 24.15                    | 25.00         | 0.349                  | 0.42                     | 0.269                   | 0.33                      | -0.11       |
| Body                   | LTE Band12     | 23060          | 704             | 1RB-Mid  | Left        | 10mm     | \          | 24.15                    | 25.00         | 0.227                  | 0.28                     | 0.162                   | 0.20                      | 0.03        |
| Body                   | LTE Band12     | 23060          | 704             | 1RB-Mid  | Right       | 10mm     | \          | 24.15                    | 25.00         | 0.183                  | 0.22                     | 0.130                   | 0.16                      | 0.19        |
| Body                   | LTE Band12     | 23060          | 704             | 1RB-Mid  | Bottom      | 10mm     | \          | 24.15                    | 25.00         | 0.073                  | 0.09                     | 0.036                   | 0.04                      | 0.02        |
| Body                   | LTE Band12     | 23060          | 704             | 25RB-Low | Front       | 10mm     | \          | 23.25                    | 24.00         | 0.126                  | 0.15                     | 0.098                   | 0.12                      | 0.07        |
| Body                   | LTE Band12     | 23060          | 704             | 25RB-Low | Rear        | 10mm     | \          | 23.25                    | 24.00         | 0.254                  | 0.30                     | 0.196                   | 0.23                      | -0.14       |
| Body                   | LTE Band12     | 23060          | 704             | 25RB-Low | Left        | 10mm     | \          | 23.25                    | 24.00         | 0.155                  | 0.18                     | 0.112                   | 0.13                      | 0.00        |
| Body                   | LTE Band12     | 23060          | 704             | 25RB-Low | Right       | 10mm     | \          | 23.25                    | 24.00         | 0.135                  | 0.16                     | 0.096                   | 0.11                      | -0.06       |
| Body                   | LTE Band12     | 23060          | 704             | 25RB-Low | Bottom      | 10mm     | \          | 23.25                    | 24.00         | 0.054                  | 0.06                     | 0.027                   | 0.03                      | 0.11        |
| Head                   | LTE Band13     | 23230          | 782             | 1RB-Mid  | Cheek Left  | 0mm      | FIG A.16   | 23.94                    | 25.00         | 0.210                  | 0.27                     | 0.164                   | 0.21                      | 0.12        |
| Head                   | LTE Band13     | 23230          | 782             | 1RB-Mid  | Tilt Left   | 0mm      | \          | 23.94                    | 25.00         | 0.126                  | 0.16                     | 0.102                   | 0.13                      | -0.11       |
| Head                   | LTE Band13     | 23230          | 782             | 1RB-Mid  | Cheek Right | 0mm      | \          | 23.94                    | 25.00         | 0.180                  | 0.23                     | 0.144                   | 0.18                      | 0.08        |
| Head                   | LTE Band13     | 23230          | 782             | 1RB-Mid  | Tilt Right  | 0mm      | \          | 23.94                    | 25.00         | 0.161                  | 0.21                     | 0.129                   | 0.16                      | 0.17        |
| Head                   | LTE Band13     | 23230          | 782             | 25RB-Mid | Cheek Left  | 0mm      | \          | 22.94                    | 24.00         | 0.166                  | 0.21                     | 0.129                   | 0.16                      | -0.12       |
| Head                   | LTE Band13     | 23230          | 782             | 25RB-Mid | Tilt Left   | 0mm      | \          | 22.94                    | 24.00         | 0.100                  | 0.13                     | 0.081                   | 0.10                      | -0.18       |
| Head                   | LTE Band13     | 23230          | 782             | 25RB-Mid | Cheek Right | 0mm      | \          | 22.94                    | 24.00         | 0.136                  | 0.17                     | 0.109                   | 0.14                      | -0.08       |
| Head                   | LTE Band13     | 23230          | 782             | 25RB-Mid | Tilt Right  | 0mm      | \          | 22.94                    | 24.00         | 0.127                  | 0.16                     | 0.101                   | 0.13                      | -0.01       |
| Body                   | LTE Band13     | 23230          | 782             | 1RB-Mid  | Front       | 10mm     | \          | 23.94                    | 25.00         | 0.160                  | 0.20                     | 0.105                   | 0.13                      | -0.18       |
| Body                   | LTE Band13     | 23230          | 782             | 1RB-Mid  | Rear        | 10mm     | FIG A.17   | 23.94                    | 25.00         | 0.324                  | 0.41                     | 0.192                   | 0.25                      | 0.10        |
| Body                   | LTE Band13     | 23230          | 782             | 1RB-Mid  | Left        | 10mm     | \          | 23.94                    | 25.00         | 0.214                  | 0.27                     | 0.119                   | 0.15                      | -0.15       |
| Body                   | LTE Band13     | 23230          | 782             | 1RB-Mid  | Right       | 10mm     | \          | 23.94                    | 25.00         | 0.134                  | 0.17                     | 0.074                   | 0.09                      | -0.14       |
| Body                   | LTE Band13     | 23230          | 782             | 1RB-Mid  | Bottom      | 10mm     | \          | 23.94                    | 25.00         | 0.114                  | 0.15                     | 0.043                   | 0.05                      | -0.08       |
| Body                   | LTE Band13     | 23230          | 782             | 25RB-Mid | Front       | 10mm     | \          | 22.94                    | 24.00         | 0.130                  | 0.17                     | 0.080                   | 0.10                      | 0.09        |
| Body                   | LTE Band13     | 23230          | 782             | 25RB-Mid | Rear        | 10mm     | \          | 22.94                    | 24.00         | 0.263                  | 0.34                     | 0.156                   | 0.20                      | -0.11       |
| Body                   | LTE Band13     | 23230          | 782             | 25RB-Mid | Left        | 10mm     | \          | 22.94                    | 24.00         | 0.163                  | 0.21                     | 0.092                   | 0.12                      | -0.13       |
| Body                   | LTE Band13     | 23230          | 782             | 25RB-Mid | Right       | 10mm     | \          | 22.94                    | 24.00         | 0.109                  | 0.14                     | 0.061                   | 0.08                      | -0.07       |
| Body                   | LTE Band13     | 23230          | 782             | 25RB-Mid | Bottom      | 10mm     | \          | 22.94                    | 24.00         | 0.090                  | 0.11                     | 0.034                   | 0.04                      | 0.03        |
| Head                   | LTE Band25     | 26590          | 1905            | 1RB-Mid  | Cheek Left  | 0mm      | \          | 23.53                    | 24.50         | 0.183                  | 0.23                     | 0.103                   | 0.13                      | 0.14        |
| Head                   | LTE Band25     | 26590          | 1905            | 1RB-Mid  | Tilt Left   | 0mm      | \          | 23.53                    | 24.50         | 0.074                  | 0.09                     | 0.043                   | 0.05                      | 0.08        |
| Head                   | LTE Band25     | 26590          | 1905            | 1RB-Mid  | Cheek Right | 0mm      | FIG A.18   | 23.53                    | 24.50         | 0.215                  | 0.27                     | 0.128                   | 0.16                      | 0.05        |
| Head                   | LTE Band25     | 26590          | 1905            | 1RB-Mid  | Tilt Right  | 0mm      | \          | 23.53                    | 24.50         | 0.099                  | 0.12                     | 0.057                   | 0.07                      | 0.14        |
| Head                   | LTE Band25     | 26590          | 1905            | 50RB-Mid | Cheek Left  | 0mm      | \          | 22.53                    | 23.50         | 0.134                  | 0.17                     | 0.075                   | 0.09                      | 0.05        |
| Head                   | LTE Band25     | 26590          | 1905            | 50RB-Mid | Tilt Left   | 0mm      | \          | 22.53                    | 23.50         | 0.054                  | 0.07                     | 0.032                   | 0.04                      | 0.02        |
| Head                   | LTE Band25     | 26590          | 1905            | 50RB-Mid | Cheek Right | 0mm      | \          | 22.53                    | 23.50         | 0.161                  | 0.20                     | 0.097                   | 0.12                      | 0.12        |
| Head                   | LTE Band25     | 26590          | 1905            | 50RB-Mid | Tilt Right  | 0mm      | \          | 22.53                    | 23.50         | 0.075                  | 0.09                     | 0.045                   | 0.06                      | -0.14       |
| Body                   | LTE Band25     | 26590          | 1905            | 1RB-Mid  | Front       | 10mm     | \          | 20.61                    | 21.50         | 0.157                  | 0.19                     | 0.100                   | 0.12                      | 0.16        |
| Body                   | LTE Band25     | 26590          | 1905            | 1RB-Mid  | Rear        | 10mm     | \          | 20.61                    | 21.50         | 0.374                  | 0.46                     | 0.206                   | 0.25                      | -0.13       |
| Body                   | LTE Band25     | 26590          | 1905            | 1RB-Mid  | Left        | 10mm     | \          | 20.61                    | 21.50         | <0.01                  | <0.01                    | <0.01                   | <0.01                     |             |
| Body                   | LTE Band25     | 26590          | 1905            | 1RB-Mid  | Right       | 10mm     | \          | 20.61                    | 21.50         | 0.090                  | 0.11                     | 0.053                   | 0.07                      | 0.06        |
| Body                   | LTE Band25     | 26590          | 1905            | 1RB-Mid  | Bottom      | 10mm     | \          | 20.61                    | 21.50         | 0.348                  | 0.43                     | 0.183                   | 0.22                      | -0.02       |
| Body                   | LTE Band25     | 26590          | 1905            | 50RB-Mid | Front       | 10mm     | \          | 20.50                    | 21.50         | 0.156                  | 0.20                     | 0.098                   | 0.12                      | 0.08        |
| Body                   | LTE Band25     | 26590          | 1905            | 50RB-Mid | Rear        | 10mm     | \          | 20.50                    | 21.50         | 0.390                  | 0.49                     | 0.208                   | 0.26                      | -0.09       |
| Body                   | LTE Band25     | 26590          | 1905            | 50RB-Mid | Left        | 10mm     | \          | 20.50                    | 21.50         | <0.01                  | <0.01                    | <0.01                   | <0.01                     |             |
| Body                   | LTE Band25     | 26590          | 1905            | 50RB-Mid | Right       | 10mm     | \          | 20.50                    | 21.50         | 0.058                  | 0.07                     | 0.033                   | 0.04                      | -0.14       |
| Body                   | LTE Band25     | 26590          | 1905            | 50RB-Mid | Bottom      | 10mm     | FIG A.19   | 20.50                    | 21.50         | 0.392                  | 0.49                     | 0.210                   | 0.26                      | 0.11        |
| Body                   | LTE Band25     | 26590          | 1905            | 1RB-Mid  | Front       | 15mm     | \          | 22.42                    | 23.50         | 0.152                  | 0.19                     | 0.099                   | 0.13                      | -0.15       |
| Body                   | LTE Band25     | 26590          | 1905            | 1RB-Mid  | Rear        | 15mm     | FIG A.20   | 22.42                    | 23.50         | 0.310                  | 0.40                     | 0.180                   | 0.23                      | -0.10       |
| Body                   | LTE Band25     | 26590          | 1905            | 50RB-Mid | Front       | 15mm     | \          | 21.39                    | 22.50         | 0.151                  | 0.19                     | 0.097                   | 0.13                      | 0.12        |
| Body                   | LTE Band25     | 26590          | 1905            | 50RB-Mid | Rear        | 15mm     | \          | 21.39                    | 22.50         | 0.302                  | 0.39                     | 0.175                   | 0.23                      | 0.11        |
| Head                   | LTE Band26     | 26965          | 841.5           | 1RB-Mid  | Cheek Left  | 0mm      | FIG A.21   | 23.92                    | 25.00         | 0.224                  | 0.29                     | 0.177                   | 0.23                      | -0.09       |
| Head                   | LTE Band26     | 26965          | 841.5           | 1RB-Mid  | Tilt Left   | 0mm      | \          | 23.92                    | 25.00         | 0.134                  | 0.17                     | 0.108                   | 0.14                      | 0.01        |
| Head                   | LTE Band26     | 26965          | 841.5           | 1RB-Mid  | Cheek Right | 0mm      | \          | 23.92                    | 25.00         | 0.162                  | 0.21                     | 0.130                   | 0.17                      | -0.03       |
| Head                   | LTE Band26     | 26965          | 841.5           | 1RB-Mid  | Tilt Right  | 0mm      | \          | 23.92                    | 25.00         | 0.138                  | 0.18                     | 0.110                   | 0.14                      | 0.02        |
| Head                   | LTE Band26     | 26965          | 841.5           | 36RB-Low | Cheek Left  | 0mm      | \          | 23.07                    | 24.00         | 0.173                  | 0.21                     | 0.137                   | 0.17                      | 0.09        |
| Head                   | LTE Band26     | 26965          | 841.5           | 36RB-Low | Tilt Left   | 0mm      | \          | 23.07                    | 24.00         | 0.102                  | 0.13                     | 0.083                   | 0.10                      | 0.01        |
| Head                   | LTE Band26     | 26965          | 841.5           | 36RB-Low | Cheek Right | 0mm      | \          | 23.07                    | 24.00         | 0.130                  | 0.16                     | 0.105                   | 0.13                      | 0.19        |
| Head                   | LTE Band26     | 26965          | 841.5           | 36RB-Low | Tilt Right  | 0mm      | \          | 23.07                    | 24.00         | 0.110                  | 0.14                     | 0.087                   | 0.11                      | 0.10        |
| Body                   | LTE Band26     | 26965          | 841.5           | 1RB-Mid  | Front       | 10mm     | \          | 23.92                    | 25.00         | 0.173                  | 0.22                     | 0.097                   | 0.12                      | -0.17       |
| Body                   | LTE Band26     | 26965          | 841.5           | 1RB-Mid  | Rear        | 10mm     | FIG A.22   | 23.92                    | 25.00         | 0.293                  | 0.38                     | 0.162                   | 0.21                      | -0.06       |
| Body                   | LTE Band26     | 26965          | 841.5           | 1RB-Mid  | Left        | 10mm     | \          | 23.92                    | 25.00         | 0.201                  | 0.26                     | 0.103                   | 0.13                      | 0.12        |
| Body                   | LTE Band26     | 26965          | 841.5           | 1RB-Mid  | Right       | 10mm     | \          | 23.92                    | 25.00         | 0.122                  | 0.16                     | 0.063                   | 0.08                      | 0.06        |
| Body                   | LTE Band26     | 26965          | 841.5           | 1RB-Mid  | Bottom      | 10mm     | \          | 23.92                    | 25.00         | 0.111                  | 0.14                     | 0.040                   | 0.05                      | -0.15       |
| Body                   | LTE Band26     | 26965          | 841.5           | 36RB-Low | Front       | 10mm     | \          | 23.07                    | 24.00         | 0.132                  | 0.16                     | 0.074                   | 0.09                      | 0.19        |
| Body                   | LTE Band26     | 26965          | 841.5           | 36RB-Low | Rear        | 10mm     | \          | 23.07                    | 24.00         | 0.232                  | 0.29                     | 0.128                   | 0.16                      | -0.08       |
| Body                   | LTE Band26     | 26965          | 841.5           | 36RB-Low | Left        | 10mm     | \          | 23.07                    | 24.00         | 0.156                  | 0.19                     | 0.080                   | 0.10                      | -0.12       |
| Body                   | LTE Band26     | 26965          | 841.5           | 36RB-Low | Right       | 10mm     | \          | 23.07                    | 24.00         | 0.096                  | 0.12                     | 0.049                   | 0.06                      | 0.06        |
| Body                   | LTE Band26     | 26965          | 841.5           | 36RB-Low | Bottom      | 10mm     | \          | 23.07                    | 24.00         | 0.080                  | 0.10                     | 0.029                   | 0.04                      | 0.12        |

| RF Exposure Conditions | Frequency Band | Channel Number | Frequency (MHz) | Mode/RB   | Test setup  | Distance | Figure No. | EUT Measured Power (dBm) | Tune up (dBm) | Measured SAR 1g (W/kg) | Calculated SAR 1g (W/kg) | Measured SAR 10g (W/kg) | Calculated SAR 10g (W/kg) | Power Drift |
|------------------------|----------------|----------------|-----------------|-----------|-------------|----------|------------|--------------------------|---------------|------------------------|--------------------------|-------------------------|---------------------------|-------------|
| Head                   | LTE Band41     | 39750          | 2506            | 1RB-Mid   | Cheek Left  | 0mm      | \          | 23.24                    | 24.00         | 0.068                  | <b>0.08</b>              | 0.039                   | <b>0.05</b>               | 0.15        |
| Head                   | LTE Band41     | 39750          | 2506            | 1RB-Mid   | Tilt Left   | 0mm      | \          | 23.24                    | 24.00         | 0.047                  | <b>0.06</b>              | 0.026                   | <b>0.03</b>               | 0.11        |
| Head                   | LTE Band41     | 39750          | 2506            | 1RB-Mid   | Cheek Right | 0mm      | \          | 23.24                    | 24.00         | 0.120                  | <b>0.14</b>              | 0.066                   | <b>0.08</b>               | 0.12        |
| Head                   | LTE Band41     | 39750          | 2506            | 1RB-Mid   | Tilt Right  | 0mm      | \          | 23.24                    | 24.00         | 0.046                  | <b>0.05</b>              | 0.026                   | <b>0.03</b>               | -0.13       |
| Head                   | LTE Band41     | 41490          | 2680            | 50RB-High | Cheek Left  | 0mm      | \          | 22.27                    | 23.00         | 0.086                  | <b>0.10</b>              | 0.045                   | <b>0.05</b>               | 0.07        |
| Head                   | LTE Band41     | 41490          | 2680            | 50RB-High | Tilt Left   | 0mm      | \          | 22.27                    | 23.00         | 0.082                  | <b>0.10</b>              | 0.043                   | <b>0.05</b>               | -0.13       |
| Head                   | LTE Band41     | 41490          | 2680            | 50RB-High | Cheek Right | 0mm      | FIG A.23   | 22.27                    | 23.00         | 0.132                  | <b>0.16</b>              | 0.070                   | <b>0.08</b>               | 0.08        |
| Head                   | LTE Band41     | 41490          | 2680            | 50RB-High | Tilt Right  | 0mm      | \          | 22.27                    | 23.00         | 0.097                  | <b>0.11</b>              | 0.051                   | <b>0.06</b>               | -0.06       |
| Body                   | LTE Band41     | 39750          | 2506            | 1RB-Mid   | Front       | 10mm     | \          | 19.29                    | 20.00         | 0.125                  | <b>0.15</b>              | 0.064                   | <b>0.08</b>               | -0.10       |
| Body                   | LTE Band41     | 39750          | 2506            | 1RB-Mid   | Rear        | 10mm     | \          | 19.29                    | 20.00         | 0.444                  | <b>0.52</b>              | 0.200                   | <b>0.24</b>               | -0.01       |
| Body                   | LTE Band41     | 39750          | 2506            | 1RB-Mid   | Left        | 10mm     | \          | 19.29                    | 20.00         | <0.01                  | <b>&lt;0.01</b>          | <0.01                   | <b>&lt;0.01</b>           |             |
| Body                   | LTE Band41     | 39750          | 2506            | 1RB-Mid   | Right       | 10mm     | \          | 19.29                    | 20.00         | 0.068                  | <b>0.08</b>              | 0.035                   | <b>0.04</b>               | -0.14       |
| Body                   | LTE Band41     | 39750          | 2506            | 1RB-Mid   | Bottom      | 10mm     | \          | 19.29                    | 20.00         | 0.424                  | <b>0.50</b>              | 0.205                   | <b>0.24</b>               | 0.19        |
| Body                   | LTE Band41     | 41490          | 2680            | 50RB-High | Front       | 10mm     | \          | 19.29                    | 20.00         | 0.154                  | <b>0.18</b>              | 0.070                   | <b>0.08</b>               | 0.14        |
| Body                   | LTE Band41     | 41490          | 2680            | 50RB-High | Rear        | 10mm     | \          | 19.29                    | 20.00         | 0.319                  | <b>0.38</b>              | 0.146                   | <b>0.17</b>               | 0.07        |
| Body                   | LTE Band41     | 41490          | 2680            | 50RB-High | Left        | 10mm     | \          | 19.29                    | 20.00         | 0.029                  | <b>0.03</b>              | 0.014                   | <b>0.02</b>               | 0.16        |
| Body                   | LTE Band41     | 41490          | 2680            | 50RB-High | Right       | 10mm     | \          | 19.29                    | 20.00         | 0.047                  | <b>0.06</b>              | 0.024                   | <b>0.03</b>               | -0.17       |
| Body                   | LTE Band41     | 41490          | 2680            | 50RB-High | Bottom      | 10mm     | FIG A.24   | 19.29                    | 20.00         | 0.483                  | <b>0.57</b>              | 0.215                   | <b>0.25</b>               | 0.06        |
| Body                   | LTE Band41     | 39750          | 2506            | 1RB-Mid   | Front       | 15mm     | \          | 20.86                    | 22.00         | 0.128                  | <b>0.17</b>              | 0.068                   | <b>0.09</b>               | -0.15       |
| Body                   | LTE Band41     | 39750          | 2506            | 1RB-Mid   | Rear        | 15mm     | FIG A.25   | 20.86                    | 22.00         | 0.359                  | <b>0.47</b>              | 0.180                   | <b>0.23</b>               | -0.14       |
| Body                   | LTE Band41     | 41490          | 2680            | 50RB-High | Front       | 15mm     | \          | 19.84                    | 21.00         | 0.108                  | <b>0.14</b>              | 0.056                   | <b>0.07</b>               | 0.08        |
| Body                   | LTE Band41     | 41490          | 2680            | 50RB-High | Rear        | 15mm     | \          | 19.84                    | 21.00         | 0.251                  | <b>0.33</b>              | 0.125                   | <b>0.16</b>               | -0.14       |
| Head                   | LTE Band41     | 41490          | 2680            | 1RB-Mid   | Cheek Left  | 0mm      | \          | 26.17                    | 27.00         | 0.152                  | <b>0.18</b>              | 0.079                   | <b>0.10</b>               | 0.07        |
| Head                   | LTE Band41     | 41490          | 2680            | 1RB-Mid   | Tilt Left   | 0mm      | \          | 26.17                    | 27.00         | 0.147                  | <b>0.18</b>              | 0.080                   | <b>0.10</b>               | -0.19       |
| Head                   | LTE Band41     | 41490          | 2680            | 1RB-Mid   | Cheek Right | 0mm      | FIG A.26   | 26.17                    | 27.00         | 0.238                  | <b>0.29</b>              | 0.125                   | <b>0.15</b>               | -0.07       |
| Head                   | LTE Band41     | 41490          | 2680            | 1RB-Mid   | Tilt Right  | 0mm      | \          | 26.17                    | 27.00         | 0.169                  | <b>0.20</b>              | 0.088                   | <b>0.11</b>               | 0.07        |
| Head                   | LTE Band41     | 41490          | 2680            | 50RB-Mid  | Cheek Left  | 0mm      | \          | 25.09                    | 26.00         | 0.132                  | <b>0.16</b>              | 0.067                   | <b>0.08</b>               | 0.01        |
| Head                   | LTE Band41     | 41490          | 2680            | 50RB-Mid  | Tilt Left   | 0mm      | \          | 25.09                    | 26.00         | 0.137                  | <b>0.17</b>              | 0.075                   | <b>0.09</b>               | -0.08       |
| Head                   | LTE Band41     | 41490          | 2680            | 50RB-Mid  | Cheek Right | 0mm      | \          | 25.09                    | 26.00         | 0.223                  | <b>0.27</b>              | 0.117                   | <b>0.14</b>               | 0.02        |
| Head                   | LTE Band41     | 41490          | 2680            | 50RB-Mid  | Tilt Right  | 0mm      | \          | 25.09                    | 26.00         | 0.152                  | <b>0.19</b>              | 0.080                   | <b>0.10</b>               | 0.18        |
| Body                   | LTE Band41     | 41490          | 2680            | 1RB-Mid   | Front       | 10mm     | \          | 22.27                    | 23.00         | 0.213                  | <b>0.25</b>              | 0.098                   | <b>0.12</b>               | 0.00        |
| Body                   | LTE Band41     | 41490          | 2680            | 1RB-Mid   | Rear        | 10mm     | \          | 22.27                    | 23.00         | 0.524                  | <b>0.62</b>              | 0.234                   | <b>0.28</b>               | 0.01        |
| Body                   | LTE Band41     | 41490          | 2680            | 1RB-Mid   | Left        | 10mm     | \          | 22.27                    | 23.00         | <0.01                  | <b>&lt;0.01</b>          | <0.01                   | <b>&lt;0.01</b>           |             |
| Body                   | LTE Band41     | 41490          | 2680            | 1RB-Mid   | Right       | 10mm     | \          | 22.27                    | 23.00         | 0.040                  | <b>0.05</b>              | 0.020                   | <b>0.02</b>               | -0.16       |
| Body                   | LTE Band41     | 41490          | 2680            | 1RB-Mid   | Bottom      | 10mm     | \          | 22.27                    | 23.00         | 0.346                  | <b>0.41</b>              | 0.155                   | <b>0.18</b>               | 0.10        |
| Body                   | LTE Band41     | 41490          | 2680            | 50RB-Mid  | Front       | 10mm     | \          | 22.17                    | 23.00         | 0.202                  | <b>0.24</b>              | 0.093                   | <b>0.11</b>               | -0.08       |
| Body                   | LTE Band41     | 41490          | 2680            | 50RB-Mid  | Rear        | 10mm     | \          | 22.17                    | 23.00         | 0.505                  | <b>0.61</b>              | 0.225                   | <b>0.27</b>               | 0.04        |
| Body                   | LTE Band41     | 41490          | 2680            | 50RB-Mid  | Left        | 10mm     | \          | 22.17                    | 23.00         | <0.01                  | <b>&lt;0.01</b>          | <0.01                   | <b>&lt;0.01</b>           |             |
| Body                   | LTE Band41     | 41490          | 2680            | 50RB-Mid  | Right       | 10mm     | \          | 22.17                    | 23.00         | 0.034                  | <b>0.04</b>              | 0.018                   | <b>0.02</b>               | 0.08        |
| Body                   | LTE Band41     | 41490          | 2680            | 50RB-Mid  | Bottom      | 10mm     | FIG A.27   | 22.17                    | 23.00         | 0.600                  | <b>0.73</b>              | 0.269                   | <b>0.33</b>               | 0.05        |
| Body                   | LTE Band41     | 41490          | 2680            | 1RB-Mid   | Front       | 15mm     | \          | 23.76                    | 25.00         | 0.126                  | <b>0.17</b>              | 0.078                   | <b>0.10</b>               | 0.12        |
| Body                   | LTE Band41     | 41490          | 2680            | 1RB-Mid   | Rear        | 15mm     | FIG A.28   | 23.76                    | 25.00         | 0.391                  | <b>0.52</b>              | 0.189                   | <b>0.25</b>               | 0.06        |
| Body                   | LTE Band41     | 41490          | 2680            | 50RB-Mid  | Front       | 15mm     | \          | 22.73                    | 24.00         | 0.121                  | <b>0.16</b>              | 0.075                   | <b>0.10</b>               | -0.15       |
| Body                   | LTE Band41     | 41490          | 2680            | 50RB-Mid  | Rear        | 15mm     | \          | 22.73                    | 24.00         | 0.305                  | <b>0.41</b>              | 0.181                   | <b>0.24</b>               | -0.18       |



| RF Exposure Conditions | Frequency Band | Channel Number | Frequency (MHz) | Mode/RB   | Test setup  | Distance | Figure No. | EUT Measured Power (dBm) | Tune up (dBm) | Measured SAR 1g (W/kg) | Calculated SAR 1g (W/kg) | Measured SAR 10g (W/kg) | Calculated SAR 10g (W/kg) | Power Drift |
|------------------------|----------------|----------------|-----------------|-----------|-------------|----------|------------|--------------------------|---------------|------------------------|--------------------------|-------------------------|---------------------------|-------------|
| Head                   | LTE Band66     | 132072         | 1720            | 1RB-Mid   | Cheek Left  | 0mm      | FIG A.29   | 23.35                    | 25.00         | 0.361                  | 0.53                     | 0.237                   | 0.35                      | -0.17       |
| Head                   | LTE Band66     | 132072         | 1720            | 1RB-Mid   | Tilt Left   | 0mm      | \          | 23.35                    | 25.00         | 0.146                  | 0.21                     | 0.101                   | 0.15                      | 0.18        |
| Head                   | LTE Band66     | 132072         | 1720            | 1RB-Mid   | Cheek Right | 0mm      | \          | 23.35                    | 25.00         | 0.342                  | 0.50                     | 0.239                   | 0.35                      | 0.17        |
| Head                   | LTE Band66     | 132072         | 1720            | 1RB-Mid   | Tilt Right  | 0mm      | \          | 23.35                    | 25.00         | 0.105                  | 0.15                     | 0.074                   | 0.11                      | 0.04        |
| Head                   | LTE Band66     | 132072         | 1720            | 50RB-Low  | Cheek Left  | 0mm      | \          | 22.39                    | 24.00         | 0.274                  | 0.40                     | 0.181                   | 0.26                      | -0.02       |
| Head                   | LTE Band66     | 132072         | 1720            | 50RB-Low  | Tilt Left   | 0mm      | \          | 22.39                    | 24.00         | 0.114                  | 0.17                     | 0.080                   | 0.12                      | -0.01       |
| Head                   | LTE Band66     | 132072         | 1720            | 50RB-Low  | Cheek Right | 0mm      | \          | 22.39                    | 24.00         | 0.263                  | 0.38                     | 0.184                   | 0.27                      | 0.11        |
| Head                   | LTE Band66     | 132072         | 1720            | 50RB-Low  | Tilt Right  | 0mm      | \          | 22.39                    | 24.00         | 0.085                  | 0.12                     | 0.058                   | 0.08                      | 0.05        |
| Body                   | LTE Band66     | 132072         | 1720            | 1RB-Mid   | Front       | 10mm     | \          | 20.37                    | 22.00         | 0.330                  | 0.48                     | 0.214                   | 0.31                      | 0.19        |
| Body                   | LTE Band66     | 132072         | 1720            | 1RB-Mid   | Rear        | 10mm     | FIG A.30   | 20.37                    | 22.00         | 0.587                  | 0.85                     | 0.326                   | 0.47                      | 0.15        |
| Body                   | LTE Band66     | 132072         | 1720            | 1RB-Mid   | Left        | 10mm     | \          | 20.37                    | 22.00         | <0.01                  | <0.01                    | <0.01                   | <0.01                     |             |
| Body                   | LTE Band66     | 132072         | 1720            | 1RB-Mid   | Right       | 10mm     | \          | 20.37                    | 22.00         | 0.157                  | 0.23                     | 0.092                   | 0.13                      | 0.05        |
| Body                   | LTE Band66     | 132072         | 1720            | 1RB-Mid   | Bottom      | 10mm     | \          | 20.37                    | 22.00         | 0.330                  | 0.48                     | 0.176                   | 0.26                      | 0.10        |
| Body                   | LTE Band66     | 132072         | 1720            | 50RB-Low  | Front       | 10mm     | \          | 20.35                    | 22.00         | 0.334                  | 0.49                     | 0.214                   | 0.31                      | -0.06       |
| Body                   | LTE Band66     | 132072         | 1720            | 50RB-Low  | Rear        | 10mm     | \          | 20.35                    | 22.00         | 0.580                  | 0.85                     | 0.318                   | 0.46                      | 0.07        |
| Body                   | LTE Band66     | 132072         | 1720            | 50RB-Low  | Left        | 10mm     | \          | 20.35                    | 22.00         | 0.042                  | 0.06                     | 0.024                   | 0.04                      | 0.06        |
| Body                   | LTE Band66     | 132072         | 1720            | 50RB-Low  | Right       | 10mm     | \          | 20.35                    | 22.00         | 0.159                  | 0.23                     | 0.123                   | 0.18                      | 0.03        |
| Body                   | LTE Band66     | 132072         | 1720            | 50RB-Low  | Bottom      | 10mm     | \          | 20.35                    | 22.00         | 0.356                  | 0.52                     | 0.195                   | 0.29                      | 0.10        |
| Body                   | LTE Band66     | 132072         | 1720            | 1RB-Mid   | Rear        | 10mm     | B          | 20.37                    | 22.00         | 0.527                  | 0.77                     | 0.301                   | 0.44                      | 0.02        |
| Body                   | LTE Band66     | 132072         | 1720            | 1RB-Mid   | Front       | 15mm     | \          | 22.46                    | 23.50         | 0.328                  | 0.42                     | 0.217                   | 0.28                      | -0.15       |
| Body                   | LTE Band66     | 132072         | 1720            | 1RB-Mid   | Rear        | 15mm     | FIG A.31   | 22.46                    | 23.50         | 0.476                  | 0.60                     | 0.290                   | 0.37                      | 0.13        |
| Body                   | LTE Band66     | 132072         | 1720            | 50RB-Low  | Front       | 15mm     | \          | 21.35                    | 22.50         | 0.318                  | 0.41                     | 0.210                   | 0.27                      | -0.08       |
| Body                   | LTE Band66     | 132072         | 1720            | 50RB-Low  | Rear        | 15mm     | \          | 21.35                    | 22.50         | 0.461                  | 0.60                     | 0.280                   | 0.36                      | 0.03        |
| Head                   | LTE Band71     | 133372         | 688             | 1RB-Mid   | Cheek Left  | 0mm      | \          | 23.99                    | 25.00         | 0.067                  | 0.08                     | 0.052                   | 0.07                      | 0.14        |
| Head                   | LTE Band71     | 133372         | 688             | 1RB-Mid   | Tilt Left   | 0mm      | \          | 23.99                    | 25.00         | 0.037                  | 0.05                     | 0.029                   | 0.04                      | -0.07       |
| Head                   | LTE Band71     | 133372         | 688             | 1RB-Mid   | Cheek Right | 0mm      | \          | 23.99                    | 25.00         | 0.066                  | 0.08                     | 0.053                   | 0.07                      | -0.15       |
| Head                   | LTE Band71     | 133372         | 688             | 1RB-Mid   | Tilt Right  | 0mm      | FIG A.32   | 23.99                    | 25.00         | 0.084                  | 0.11                     | 0.066                   | 0.08                      | 0.12        |
| Head                   | LTE Band71     | 133372         | 688             | 50RB-High | Cheek Left  | 0mm      | \          | 23.10                    | 24.00         | 0.051                  | 0.06                     | 0.039                   | 0.05                      | 0.12        |
| Head                   | LTE Band71     | 133372         | 688             | 50RB-High | Tilt Left   | 0mm      | \          | 23.10                    | 24.00         | 0.026                  | 0.03                     | 0.020                   | 0.02                      | 0.18        |
| Head                   | LTE Band71     | 133372         | 688             | 50RB-High | Cheek Right | 0mm      | \          | 23.10                    | 24.00         | 0.053                  | 0.07                     | 0.042                   | 0.05                      | 0.00        |
| Head                   | LTE Band71     | 133372         | 688             | 50RB-High | Tilt Right  | 0mm      | \          | 23.10                    | 24.00         | 0.064                  | 0.08                     | 0.050                   | 0.06                      | 0.04        |
| Body                   | LTE Band71     | 133372         | 688             | 1RB-Mid   | Front       | 10mm     | \          | 23.99                    | 25.00         | 0.154                  | 0.19                     | 0.117                   | 0.15                      | 0.07        |
| Body                   | LTE Band71     | 133372         | 688             | 1RB-Mid   | Rear        | 10mm     | FIG A.33   | 23.99                    | 25.00         | 0.319                  | 0.40                     | 0.235                   | 0.30                      | -0.06       |
| Body                   | LTE Band71     | 133372         | 688             | 1RB-Mid   | Left        | 10mm     | \          | 23.99                    | 25.00         | 0.174                  | 0.22                     | 0.122                   | 0.15                      | -0.13       |
| Body                   | LTE Band71     | 133372         | 688             | 1RB-Mid   | Right       | 10mm     | \          | 23.99                    | 25.00         | 0.151                  | 0.19                     | 0.107                   | 0.14                      | 0.00        |
| Body                   | LTE Band71     | 133372         | 688             | 1RB-Mid   | Bottom      | 10mm     | \          | 23.99                    | 25.00         | 0.070                  | 0.09                     | 0.034                   | 0.04                      | 0.07        |
| Body                   | LTE Band71     | 133372         | 688             | 50RB-High | Front       | 10mm     | \          | 23.10                    | 24.00         | 0.112                  | 0.14                     | 0.085                   | 0.10                      | 0.17        |
| Body                   | LTE Band71     | 133372         | 688             | 50RB-High | Rear        | 10mm     | \          | 23.10                    | 24.00         | 0.231                  | 0.28                     | 0.170                   | 0.21                      | -0.17       |
| Body                   | LTE Band71     | 133372         | 688             | 50RB-High | Left        | 10mm     | \          | 23.10                    | 24.00         | 0.132                  | 0.16                     | 0.093                   | 0.11                      | 0.18        |
| Body                   | LTE Band71     | 133372         | 688             | 50RB-High | Right       | 10mm     | \          | 23.10                    | 24.00         | 0.113                  | 0.14                     | 0.079                   | 0.10                      | -0.14       |
| Body                   | LTE Band71     | 133372         | 688             | 50RB-High | Bottom      | 10mm     | \          | 23.10                    | 24.00         | 0.050                  | 0.06                     | 0.025                   | 0.03                      | -0.10       |
| Head                   | WLAN           | 1              | 2412            | 1M        | Cheek Left  | 0mm      | \          | 17.15                    | 18.00         | 0.109                  | 0.13                     | 0.064                   | 0.08                      | -0.04       |
| Head                   | WLAN           | 1              | 2412            | 1M        | Tilt Left   | 0mm      | \          | 17.15                    | 18.00         | 0.136                  | 0.17                     | 0.069                   | 0.08                      | -0.06       |
| Head                   | WLAN           | 1              | 2412            | 1M        | Cheek Right | 0mm      | \          | 17.15                    | 18.00         | 0.209                  | 0.25                     | 0.103                   | 0.13                      | 0.09        |
| Head                   | WLAN           | 1              | 2412            | 1M        | Tilt Right  | 0mm      | FIG A.34   | 17.15                    | 18.00         | 0.223                  | 0.27                     | 0.104                   | 0.13                      | 0.07        |
| Body                   | WLAN           | 1              | 2412            | 1M        | Front       | 10mm     | \          | 20.01                    | 21.00         | 0.145                  | 0.18                     | 0.079                   | 0.10                      | -0.17       |
| Body                   | WLAN           | 1              | 2412            | 1M        | Rear        | 10mm     | FIG A.35   | 20.01                    | 21.00         | 0.278                  | 0.35                     | 0.140                   | 0.18                      | -0.11       |
| Body                   | WLAN           | 1              | 2412            | 1M        | Right       | 10mm     | \          | 20.01                    | 21.00         | 0.146                  | 0.18                     | 0.073                   | 0.09                      | 0.16        |
| Body                   | WLAN           | 1              | 2412            | 1M        | Top         | 10mm     | \          | 20.01                    | 21.00         | 0.195                  | 0.24                     | 0.101                   | 0.13                      | -0.06       |
| Head                   | BT             | 0              | 2402            | GFSK      | Cheek Left  | 0mm      | \          | 7.67                     | 9.00          | <0.01                  | <0.01                    | <0.01                   | <0.01                     | /           |
| Head                   | BT             | 0              | 2402            | GFSK      | Tilt Left   | 0mm      | \          | 7.67                     | 9.00          | <0.01                  | <0.01                    | <0.01                   | <0.01                     | /           |
| Head                   | BT             | 0              | 2402            | GFSK      | Cheek Right | 0mm      | FIG A.36   | 7.67                     | 9.00          | 0.034                  | 0.05                     | 0.011                   | 0.01                      | -0.11       |
| Head                   | BT             | 0              | 2402            | GFSK      | Tilt Right  | 0mm      | \          | 7.67                     | 9.00          | <0.01                  | <0.01                    | <0.01                   | <0.01                     | /           |
| Body                   | BT             | 0              | 2402            | GFSK      | Front       | 10mm     | \          | 7.67                     | 9.00          | <0.01                  | <0.01                    | <0.01                   | <0.01                     | /           |
| Body                   | BT             | 0              | 2402            | GFSK      | Rear        | 10mm     | FIG A.37   | 7.67                     | 9.00          | 0.011                  | 0.01                     | 0.005                   | 0.01                      | 0.18        |
| Body                   | BT             | 0              | 2402            | GFSK      | Right       | 10mm     | \          | 7.67                     | 9.00          | <0.01                  | <0.01                    | <0.01                   | <0.01                     | /           |
| Body                   | BT             | 0              | 2402            | GFSK      | Top         | 10mm     | \          | 7.67                     | 9.00          | <0.01                  | <0.01                    | <0.01                   | <0.01                     | /           |

# Duty factor plot



### 13.2 SAR results for Phablet

According to the KDB648474 D04, for smart phones, with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, that can provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets and support voice calls next to the ear, unless it is confirmed otherwise through KDB inquiries, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance.

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.
2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at  $\leq 25$  mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB Publication 865664 D01 to address interactive hand use exposure conditions. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold. The normal tablet procedures in KDB Publication 616217 are required when the overall diagonal dimension of the device is > 20.0 cm. Hotspot mode SAR is not required when normal tablet procedures are applied. Extremity 10-g SAR is also not required for the front (top) surface of larger form factor full size tablets. The more conservative normal tablet SAR results can be used to support phablet mode 10-g extremity SAR.
3. The simultaneous transmission operating configurations applicable to voice and data transmissions for both phone and mini-tablet modes must be taken into consideration separately for 1-g and 10-g SAR to determine the simultaneous transmission SAR test exclusion and measurement requirements for the relevant wireless modes and exposure conditions

For the device of this project, the overall diagonal dimension is 162.17 cm (> 16.0 cm), so this device is a phone as “phablet”.

| RF Exposure Condition | Frequency Band | Channel Number | Frequency (MHz) | Mode/RB  | Test setup | Distance | Figure No. | EUT Measured Power (dBm) | Tune up (dBm) | Measured SAR 1g (W/kg) | Calculated SAR 1g (W/kg) | Measured SAR 10g (W/kg) | Calculated SAR 10g (W/kg) | Power Drift |
|-----------------------|----------------|----------------|-----------------|----------|------------|----------|------------|--------------------------|---------------|------------------------|--------------------------|-------------------------|---------------------------|-------------|
| Body                  | LTE Band66     | 132072         | 1720            | 1RB-Mid  | Rear       | 0mm      | \          | 22.42                    | 23.50         | 2.050                  | 2.63                     | 0.925                   | 1.19                      | 0.05        |
| Body                  | LTE Band66     | 132072         | 1720            | 50RB-Low | Rear       | 0mm      | \          | 21.39                    | 22.50         | 2.110                  | 2.72                     | 0.944                   | 1.22                      | 0.13        |
| Body                  | WLAN           | 1              | 2412            | 1M       | Rear       | 0mm      | \          | 20.01                    | 21.00         | 1.380                  | 1.73                     | 0.502                   | 0.63                      | 0.10        |
| Body                  | BT             | 0              | 2402            | GFSK     | Rear       | 0mm      | \          | 7.67                     | 9.00          | 0.099                  | 0.13                     | 0.037                   | 0.05                      | 0.13        |

**Table 2.5: The sum of reported SAR values for main antenna and WiFi2.4G**

| Exposure Configuration              | Main antenna | WiFi | Sum  | Limit 10g (W/kg) |
|-------------------------------------|--------------|------|------|------------------|
| Highest reported SAR value for Limb | 1.22         | 0.63 | 1.87 | 4.0              |

## 14 SAR Measurement Variability

SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium.

The following procedures are applied to determine if repeated measurements are required.

- 1) Repeated measurement is not required when the original highest measured SAR is  $< 0.80$  W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is  $\geq 0.80$  W/kg, repeat that measurement once.
- 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is  $> 1.20$  or when the original or repeated measurement is  $\geq 1.45$  W/kg ( $\sim 10\%$  from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .

## 15 Evaluation of Simultaneous

### 15.1 Introduction

The following procedures adopted from “FCC SAR Considerations for Cell Phones with Multiple Transmitters” are applicable to handsets with built-in unlicensed transmitters such as WLAN and Bluetooth devices which may simultaneously transmit with the licensed transmitter. KDB 447498 D01 provides two procedures for determining simultaneous transmission SAR test exclusion: Sum of SAR and SAR to Peak Location Ratio (SPLSR)

#### 15.1.1 Sum of SAR

To qualify for simultaneous transmission SAR test exclusion based upon Sum of SAR the sum of the reported standalone SARs for all simultaneously transmitting antennas shall be below the applicable standalone SAR limit. If the sum of the SARs is above the applicable limit then simultaneous transmission SAR test exclusion may still apply if the requirements of the SAR to Peak Location Ratio (SPLSR) evaluation are met.

#### 15.1.2 SAR to Peak Location Ratio (SPLSR)

KDB 447498 D01 General RF Exposure Guidance explains how to calculate the SAR to Peak Location Ratio (SPLSR) between pairs of simultaneously transmitting antennas:

$$SPLSR = (SAR1 + SAR2)^{1.5} / Ri$$

Where:

*SAR1* is the highest reported or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition.

*SAR2* is the highest reported or estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first .

*Ri* is the separation distance between the pair of simultaneous transmitting antennas. When the SAR is measured, for both antennas in the pair, it is determined by the actual x, y and z coordinates in the 1-g SAR for each SAR peak location, based on the extrapolated and interpolated result in the zoom scan measurement, using the formula of

$$[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$$

In order for a pair of simultaneous transmitting antennas with the sum of 1-g SAR > 1.6 W/kg to qualify for exemption from Simultaneous Transmission SAR measurements, it has to satisfy the condition of:

$$(SAR1 + SAR2)^{1.5} / Ri \leq 0.04$$

When an individual antenna transmits at on two bands simultaneously, the sum of the highest reported SAR for the frequency bands should be used to determine *SAR1* or *SAR2*. When SPLSR is necessary, the smallest distance between the peak SAR locations for the antenna pair with respect to the peaks from each antenna should be used.

## 15.2 Simultaneous Transmission Capabilities

The simultaneous transmission possibilities for this device are listed as below:

| Capable Transmit Configurations | Head | Body-worn | Hotspot |
|---------------------------------|------|-----------|---------|
| WWAN+WLAN2.4G                   | Yes  | Yes       | Yes     |
| WWAN+BT                         | Yes  | Yes       | Yes     |

### Note:

1. The reported SAR summation is calculated based on the same configuration and test position.
2. For the devices edges with antennas more than 2.5 cm from edge are not required to be evaluated for SAR, we determined the SAR of this edges were less than 0.01. For the convenience of simultaneous transmission calculation, all SAR values less than or equal to 0.01 are uniformly written as 0.00

## 15.3 SAR Simultaneous Transmission Analysis

**Table 15.3-1: The sum of reported SAR values for Main antenna and WiFi-2.45G**

|                                            | Position                      | Cellular antenna | WiFi | Sum         |
|--------------------------------------------|-------------------------------|------------------|------|-------------|
| <b>Highest reported SAR value for Head</b> | Right hand, Cheek (WCDMA1700) | 0.60             | 0.25 | <b>0.85</b> |
| <b>Maximum reported SAR value for Body</b> | Rear 10mm (LTE Band66)        | 0.85             | 0.35 | <b>1.20</b> |

Note1: we have evaluated and chose the highest value of body 10mm and 15mm in the above table.

**Table 15.3-2: The sum of reported SAR values for Main antenna and +BT**

|                                            | Band                          | Cellular antenna | BT          | Sum         |
|--------------------------------------------|-------------------------------|------------------|-------------|-------------|
| <b>Highest reported SAR value for Head</b> | Right hand, Cheek (WCDMA1700) | 0.60             | <b>0.05</b> | <b>0.65</b> |
| <b>Maximum reported SAR value for Body</b> | Rear 10mm (LTE Band66)        | 0.85             | 0.01        | <b>0.86</b> |

Note1: we have evaluated and chose the highest value of body 10mm and 15mm in the above table.

## 15.4 Conclusion

According to the above tables, the highest simultaneous transmission reported SAR values is **1.20W/kg (1g)**. The sum of reported SAR values is <1.6W/kg. So the simultaneous transmission SAR with volume scans is not required.

## 16 Measurement Uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is  $< 1.5$  W/kg and the measured 10-g SAR within a frequency band is  $< 3.75$  W/kg. The expanded SAR measurement uncertainty must be  $\leq 30\%$ , for a confidence interval of  $k = 2$ . If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval.

Therefore, the measurement uncertainty is not required.

## 17 MAIN TEST INSTRUMENTS

| No. | Name                  | Type          | Serial Number | Calibration Date         | Valid Period |
|-----|-----------------------|---------------|---------------|--------------------------|--------------|
| 01  | Network analyzer      | N5239a        | MY55491241    | May 31, 2021             | One year     |
| 02  | Power meter           | NRP2          | 106277        | September 23, 2021       | One year     |
| 03  | Power sensor          | NRP8S         | 104291        |                          |              |
| 04  | Signal Generator      | E4438C        | MY49070393    | May 14, 2021             | One Year     |
| 05  | Amplifier             | 60S1G4        | 0331848       | No Calibration Requested |              |
| 06  | BTS                   | CMW500        | 166370        | June 25, 2021            | One year     |
| 07  | DAE                   | SPEAG DAE4    | 549           | January 7, 2022          | One year     |
|     | E-field Probe         | SPEAG EX3DV4  | 7600          | December 29, 2022        | One year     |
| 08  | E-field Probe         | SPEAG EX3DV4  | 7517          | February 03, 2021        | One year     |
| 09  | DAE                   | SPEAG DAE4    | 1525          | September 1, 2021        | One year     |
| 10  | Dipole Validation Kit | SPEAG D750V3  | 1017          | July 12,,2021            | One year     |
| 11  | Dipole Validation Kit | SPEAG D835V2  | 4d069         | July 12,,2021            | One year     |
| 12  | Dipole Validation Kit | SPEAG D1750V2 | 1003          | July 12, 2021            | One year     |
| 13  | Dipole Validation Kit | SPEAG D1900V2 | 5d101         | July 15,2021             | One year     |
| 14  | Dipole Validation Kit | SPEAG D2450V2 | 853           | July 26,2021             | One year     |
| 15  | Dipole Validation Kit | SPEAG D2600V2 | 1012          | July 26,2021             | One year     |

\*\*\*END OF REPORT BODY\*\*\*

## ANNEX A Graph Results

### GSM850 Head

Date: 1/20/2022

Electronics: DAE4 Sn549

Medium: H850

Medium parameters used (interpolated):  $f = 848.8$  MHz;  $\sigma = 0.869$  S/m;  $\epsilon_r = 44.072$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: GSM 850 Frequency: 848.8 MHz Duty Cycle: 1:8.30042

Probe: EX3DV4 - SN7600 ConvF(10.74, 10.74, 10.74)

Area Scan (81x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.218 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.128 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 0.234 W/kg

SAR(1 g) = 0.185 W/kg; SAR(10 g) = 0.147 W/kg

Maximum value of SAR (measured) = 0.217 W/kg

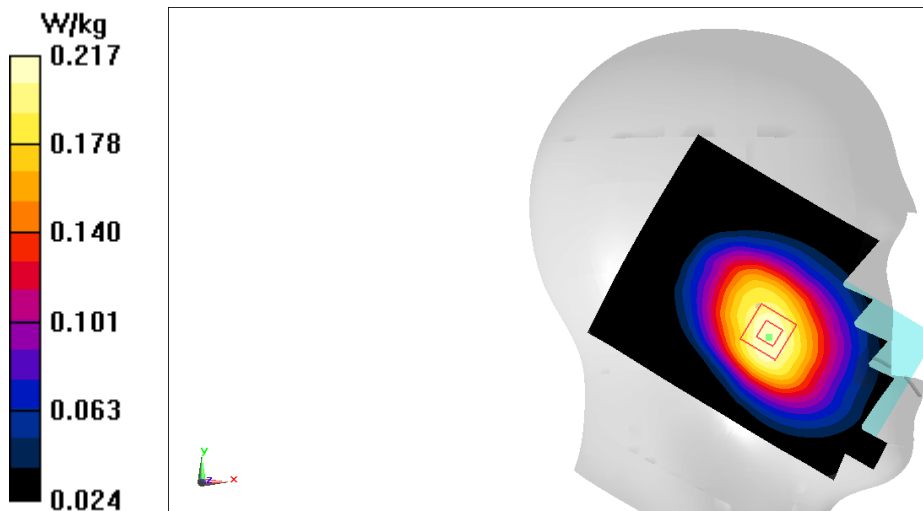


Fig A.1

## GSM850 Body

Date: 1/20/2022

Electronics: DAE4 Sn549

Medium: H850

Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.863$  S/m;  $\epsilon_r = 44.109$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC

Liquid Temperature: 22.5oC

Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:1.99986

Probe: EX3DV4 - SN7600 ConvF(10.74, 10.74, 10.74)

Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.434 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.31 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.490 W/kg

SAR(1 g) = 0.279 W/kg; SAR(10 g) = 0.163 W/kg

Maximum value of SAR (measured) = 0.418 W/kg

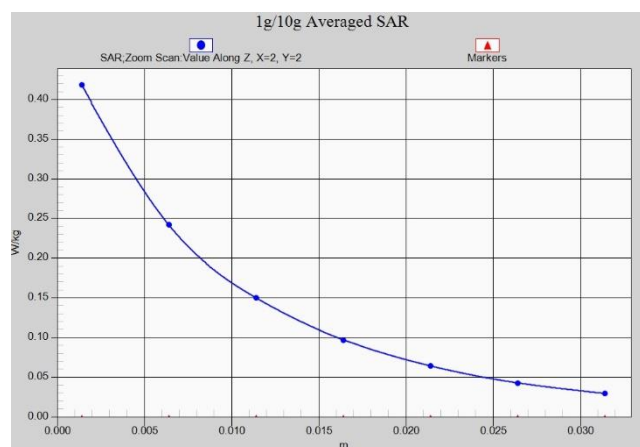
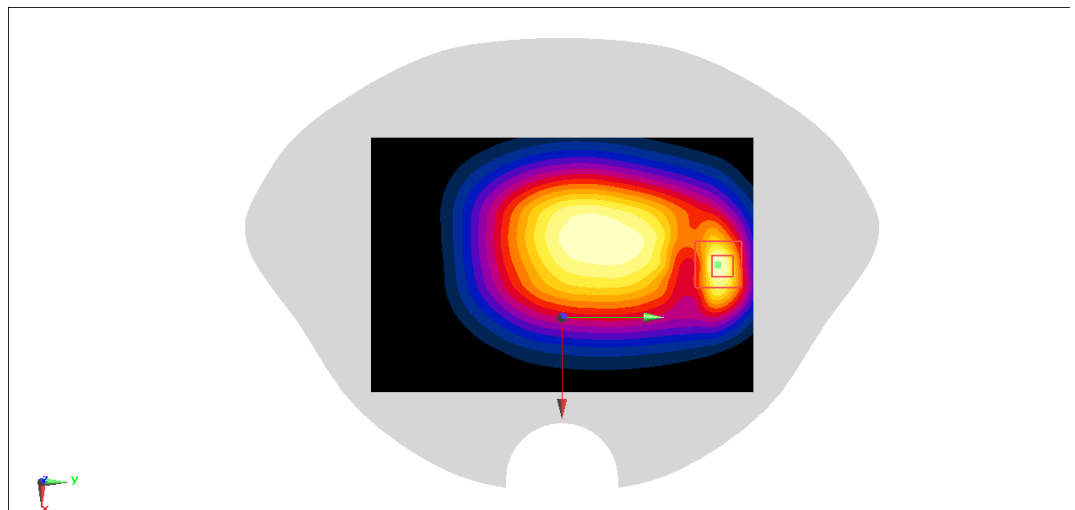
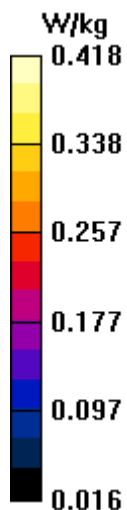


Fig A.2

## GSM1900 Head

Date: 1/18/2022

Electronics: DAE4 Sn1525

Medium: h1900

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.469$  S/m;  $\epsilon_r = 42.47$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System:, GSM 1900 Frequency: 1909.8 MHz Duty Cycle: 1:8.30042

Probe: EX3DV4 - SN7517 ConvF(7.81, 7.81, 7.81)

Left/Cheek/Area Scan (81x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.168 W/kg

Left/Cheek/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.424 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 0.179 W/kg

SAR(1 g) = 0.121 W/kg; SAR(10 g) = 0.079 W/kg

Maximum value of SAR (measured) = 0.158 W/kg

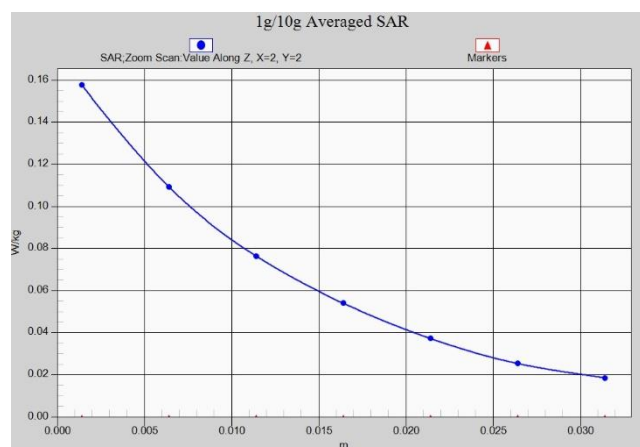
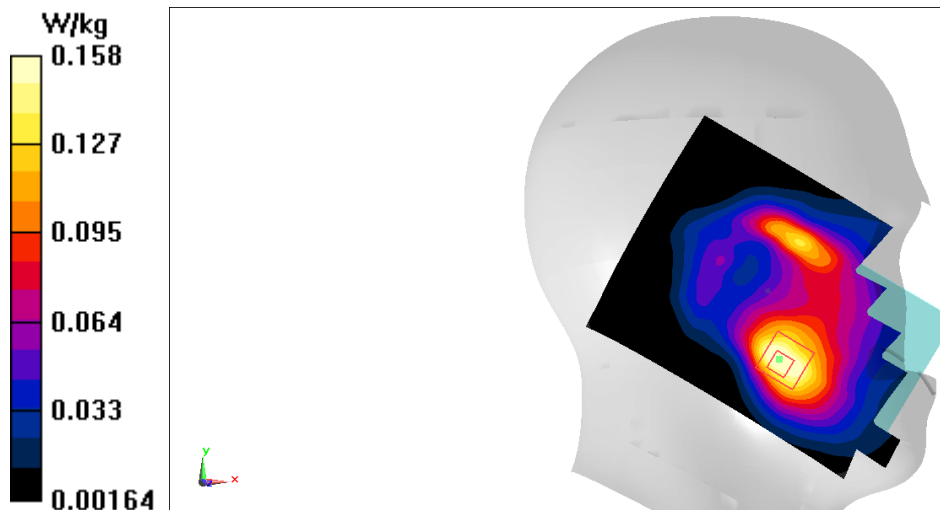


Fig A.3

## GSM1900 Body

Date: 1/18/2022

Electronics: DAE4 Sn1525

Medium: h1900

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.452$  S/m;  $\epsilon_r = 42.478$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: GSM 1900 Frequency: 1880 MHz Duty Cycle: 1:2.67

Probe: EX3DV4 - SN7517 ConvF(7.81, 7.81, 7.81)

Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.637 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.717 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.765 W/kg

SAR(1 g) = 0.417 W/kg; SAR(10 g) = 0.219 W/kg

Maximum value of SAR (measured) = 0.607 W/kg

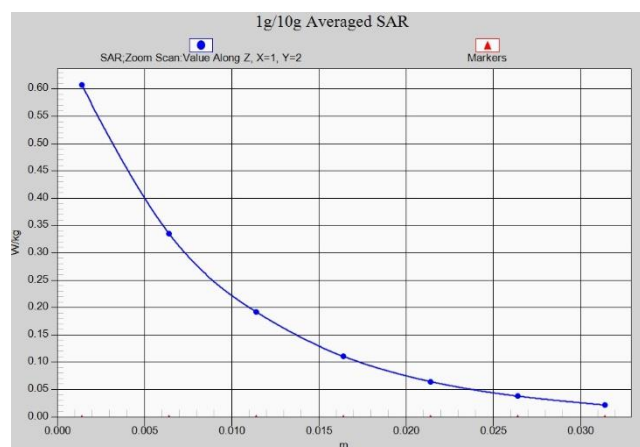
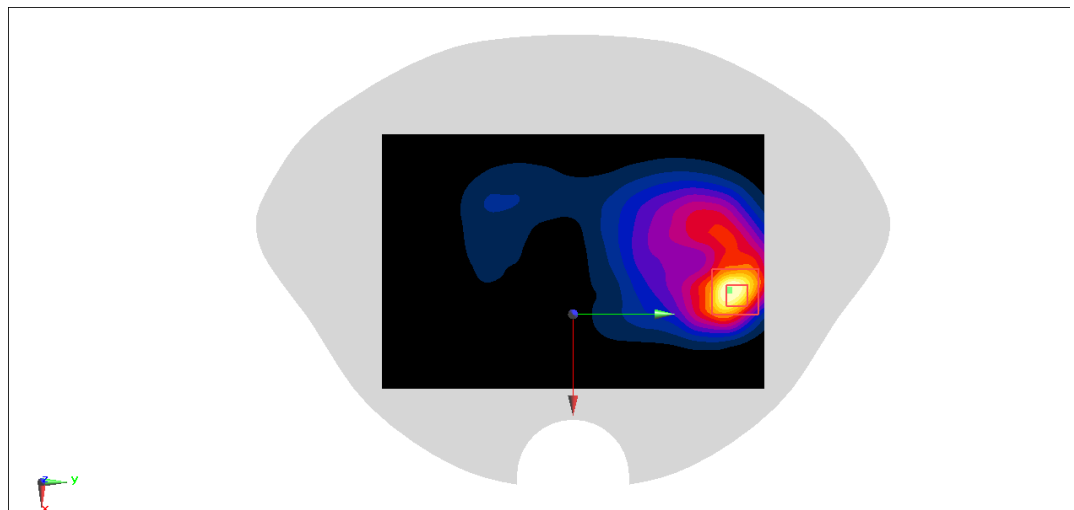
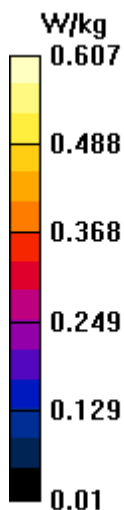


Fig A.4

## GSM1900 Body

Date: 1/18/2022

Electronics: DAE4 Sn1525

Medium: H1900

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.469$  S/m;  $\epsilon_r = 42.47$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: GSM 1900 Frequency: 1909.8 MHz Duty Cycle: 1:2.67

Probe: EX3DV4 - SN7517 ConvF(7.81, 7.81, 7.81)

Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.531 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.019 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.670 W/kg

SAR(1 g) = 0.392 W/kg; SAR(10 g) = 0.235 W/kg

Maximum value of SAR (measured) = 0.562 W/kg

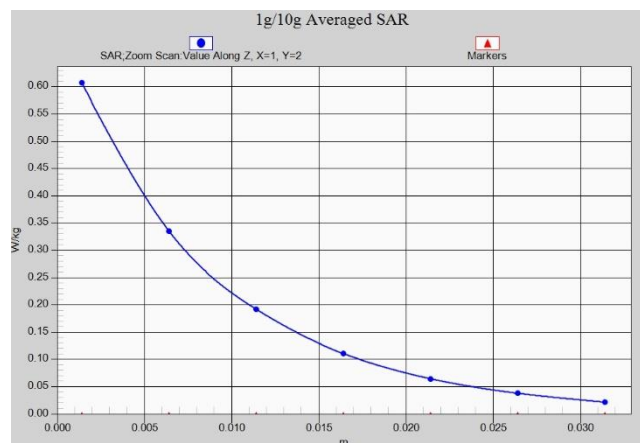
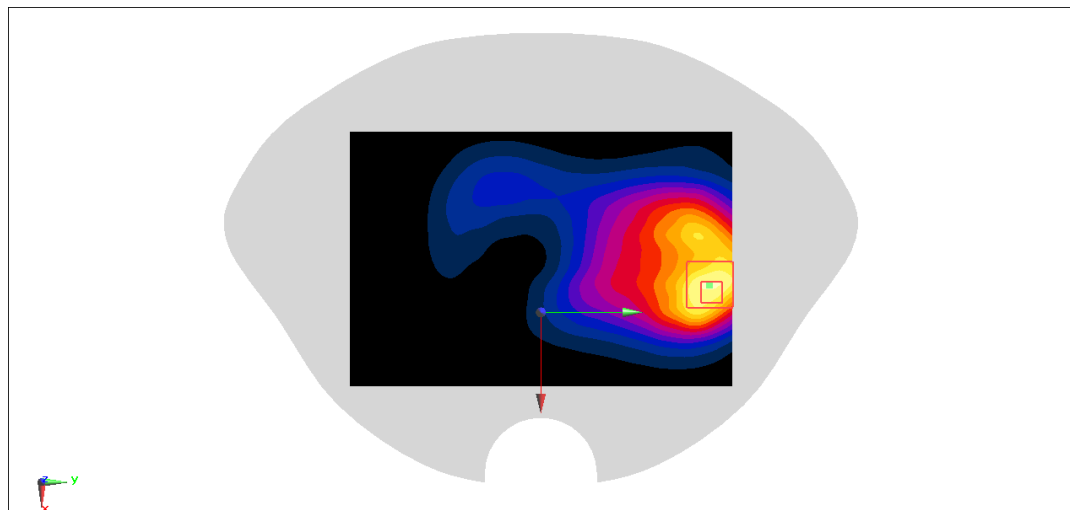
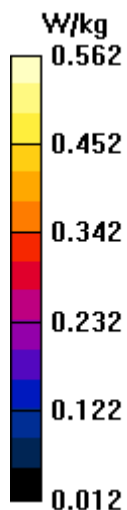


Fig A.5

## WCDMA1900 Head

Date: 1/18/2022

Electronics: DAE4 Sn1525

Medium: h1900

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.452$  S/m;  $\epsilon_r = 42.478$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: WCDMA1900 Frequency: 1880 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(7.81, 7.81, 7.81)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.361 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.242 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.397 W/kg

SAR(1 g) = 0.258 W/kg; SAR(10 g) = 0.166 W/kg

Maximum value of SAR (measured) = 0.349 W/kg

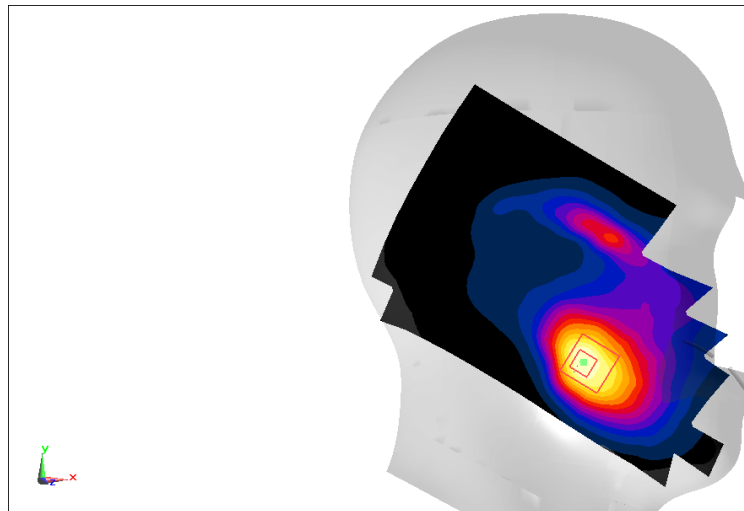
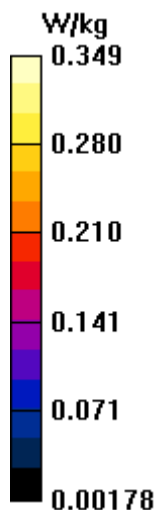


Fig A.6

## WCDMA1900 Body

Date: 1/18/2022

Electronics: DAE4 Sn1525

Medium: h1900

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.439$  S/m;  $\epsilon_r = 42.497$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC

Liquid Temperature: 22.5oC

Communication System: WCDMA1900 Frequency: 1852.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(7.81, 7.81, 7.81)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.635 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.322 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.869 W/kg

SAR(1 g) = 0.462 W/kg; SAR(10 g) = 0.248 W/kg

Maximum value of SAR (measured) = 0.721 W/kg

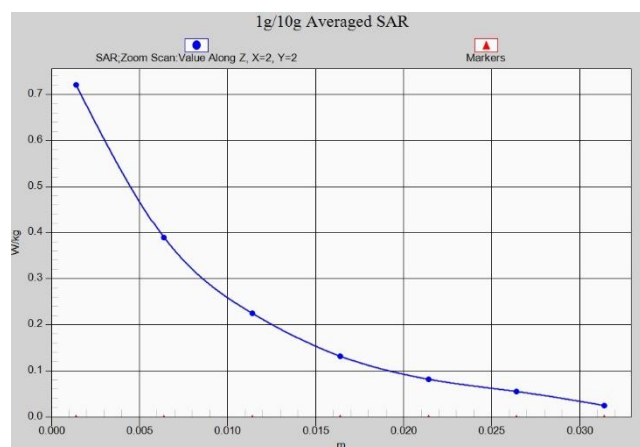
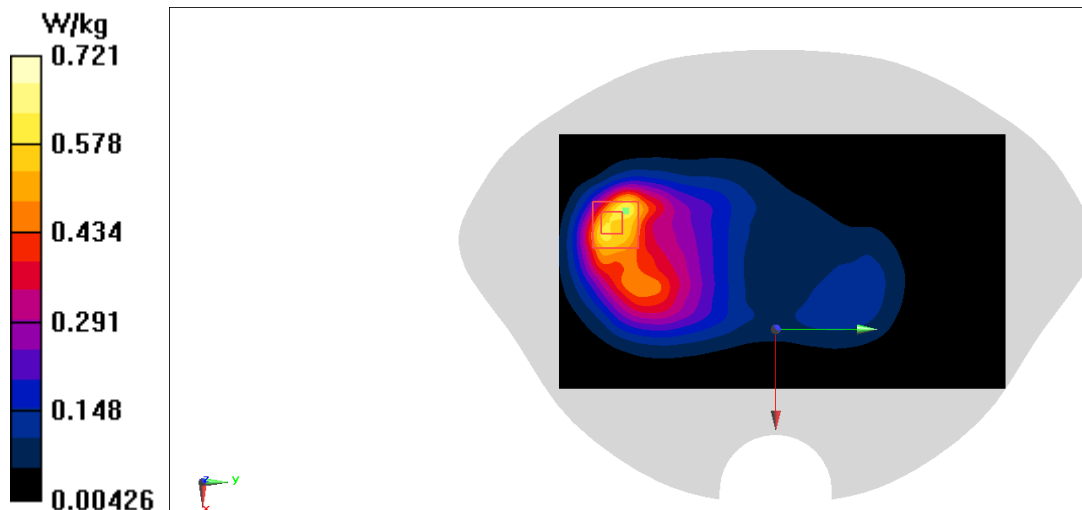


Fig A.7

## WCDMA1900 Body

Date: 1/18/2022

Electronics: DAE4 Sn1525

Medium: h1900

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.439$  S/m;  $\epsilon_r = 42.497$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: WCDMA1900 Frequency: 1852.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(7.81, 7.81, 7.81)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.482 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.566 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.594 W/kg

SAR(1 g) = 0.322 W/kg; SAR(10 g) = 0.187 W/kg

Maximum value of SAR (measured) = 0.482 W/kg

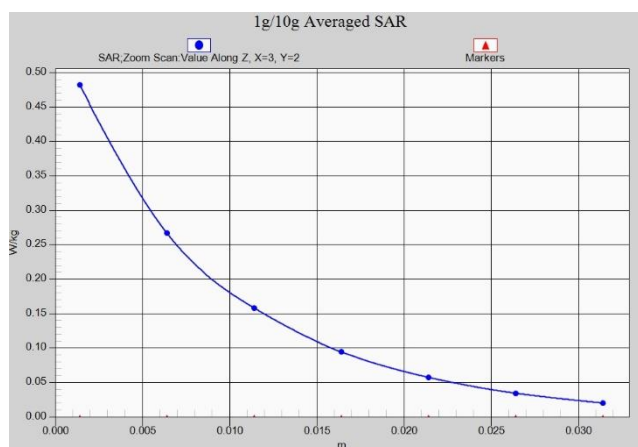
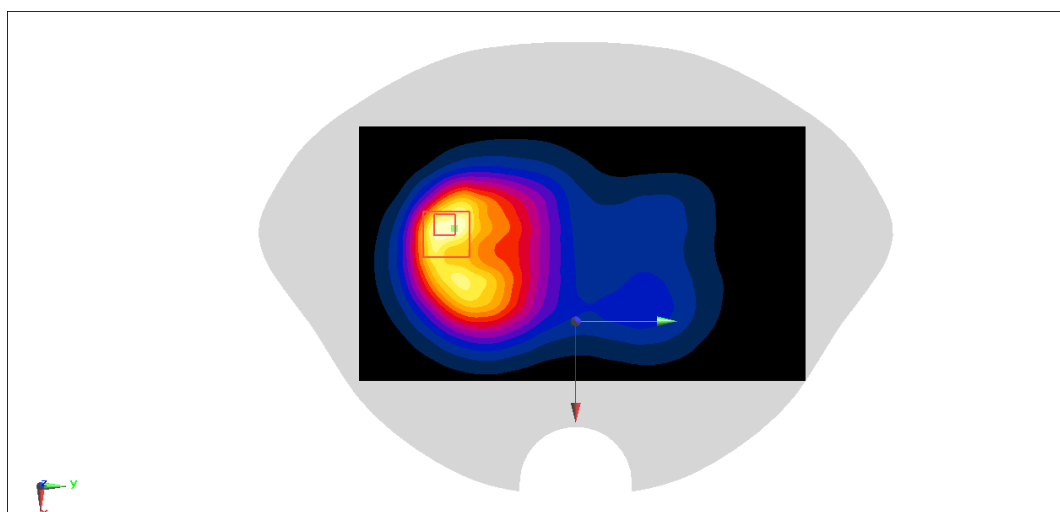
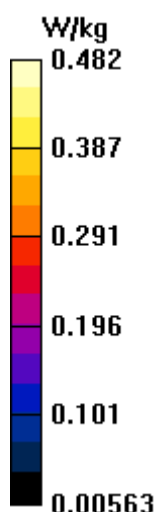


Fig A.8

## WCDMA1700 Head

Date: 1/15/2022

Electronics: DAE4 Sn1525

Medium: h1750

Medium parameters used (interpolated):  $f = 1732.4$  MHz;  $\sigma = 1.369$  S/m;  $\epsilon_r = 42.733$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC      Liquid Temperature: 22.5oC

Communication System: WCDMA1700    Frequency: 1732.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(8.22, 8.22, 8.22)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.520 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.483 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 0.636 W/kg

SAR(1 g) = 0.399 W/kg; SAR(10 g) = 0.253 W/kg

Maximum value of SAR (measured) = 0.540 W/kg

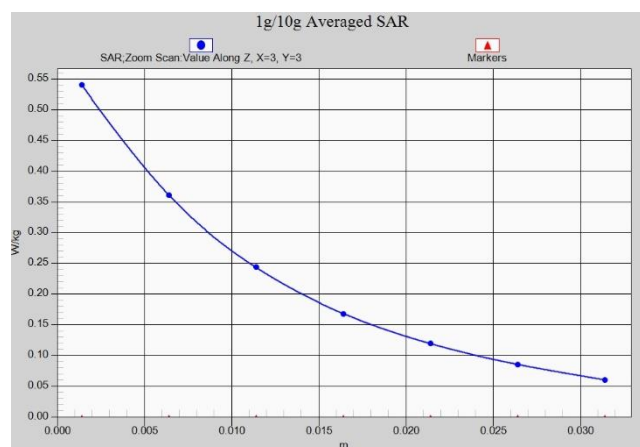
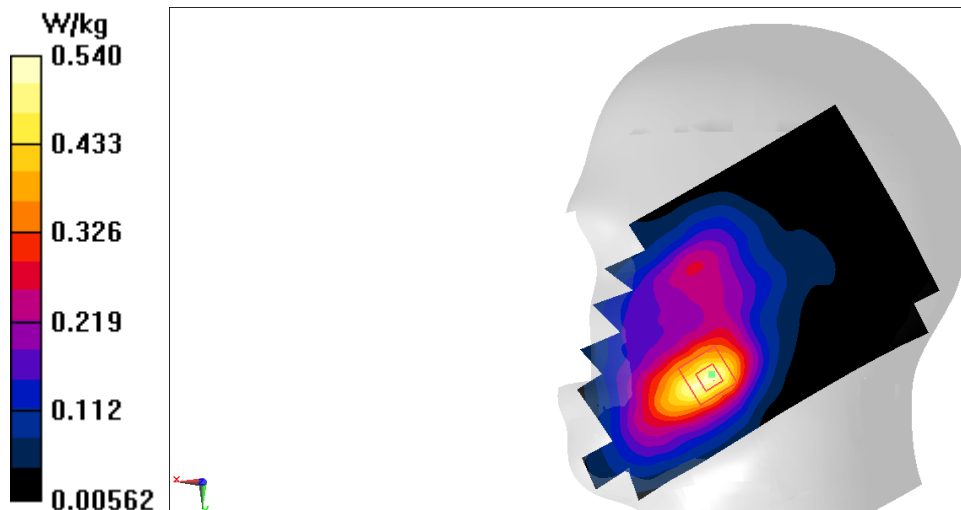


Fig A.9

## WCDMA1700 Body

Date: 1/15/2022

Electronics: DAE4 Sn1525

Medium: h1750

Medium parameters used (interpolated):  $f = 1752.6$  MHz;  $\sigma = 1.383$  S/m;  $\epsilon_r = 42.69$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC

Liquid Temperature: 22.5oC

Communication System: WCDMA1700 Frequency: 1752.6 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(8.22, 8.22, 8.22)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.808 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.968 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.974 W/kg

SAR(1 g) = 0.500 W/kg; SAR(10 g) = 0.272 W/kg

Maximum value of SAR (measured) = 0.761 W/kg

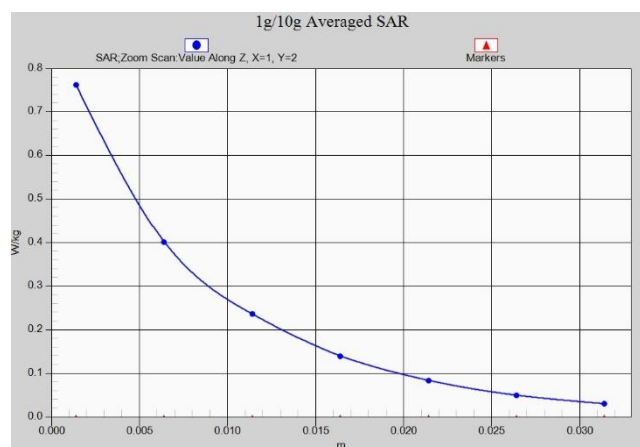
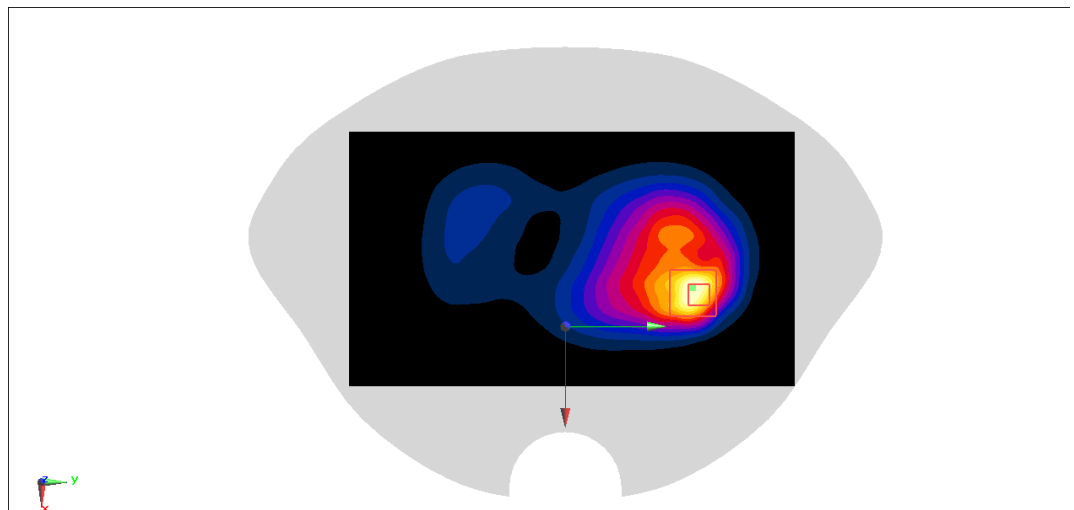
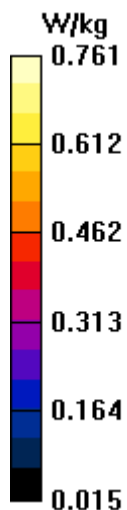


Fig A.10

## WCDMA1700 Body

Date: 1/15/2022

Electronics: DAE4 Sn1525

Medium: h1750

Medium parameters used (interpolated):  $f = 1752.6$  MHz;  $\sigma = 1.383$  S/m;  $\epsilon_r = 42.69$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC

Liquid Temperature: 22.5oC

Communication System: WCDMA1700 Frequency: 1752.6 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(8.22, 8.22, 8.22)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.548 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.053 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.670 W/kg

SAR(1 g) = 0.376 W/kg; SAR(10 g) = 0.223 W/kg

Maximum value of SAR (measured) = 0.547 W/kg

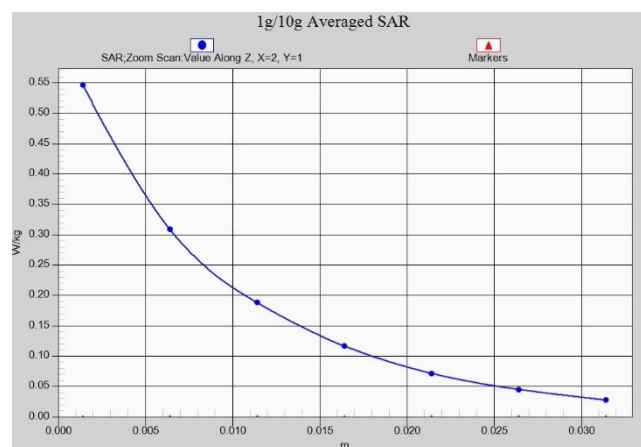
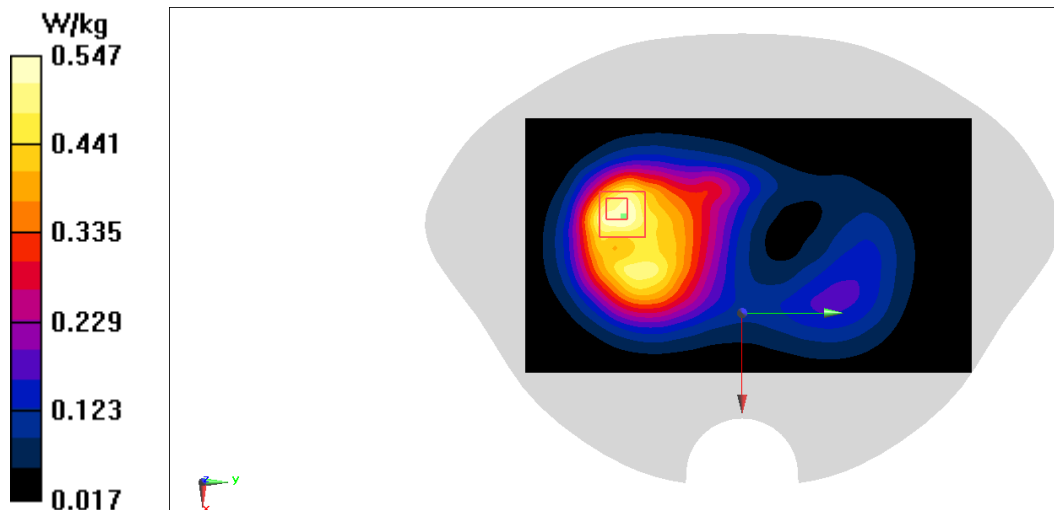


Fig A.11

## WCDMA850 Head

Date: 1/14/2022

Electronics: DAE4 Sn1525

Medium: h850

Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.855$  S/m;  $\epsilon_r = 45.107$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC

Liquid Temperature: 22.5oC

Communication System: WCDMA850 Frequency: 836.6 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(9.81, 9.81, 9.81)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.291 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.974 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.323 W/kg

SAR(1 g) = 0.249 W/kg; SAR(10 g) = 0.194 W/kg

Maximum value of SAR (measured) = 0.296 W/kg

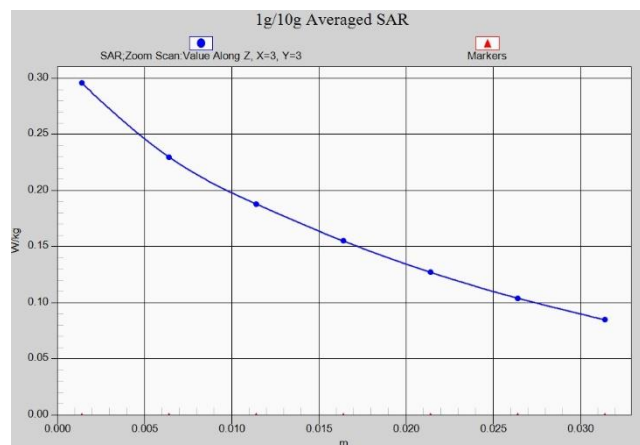
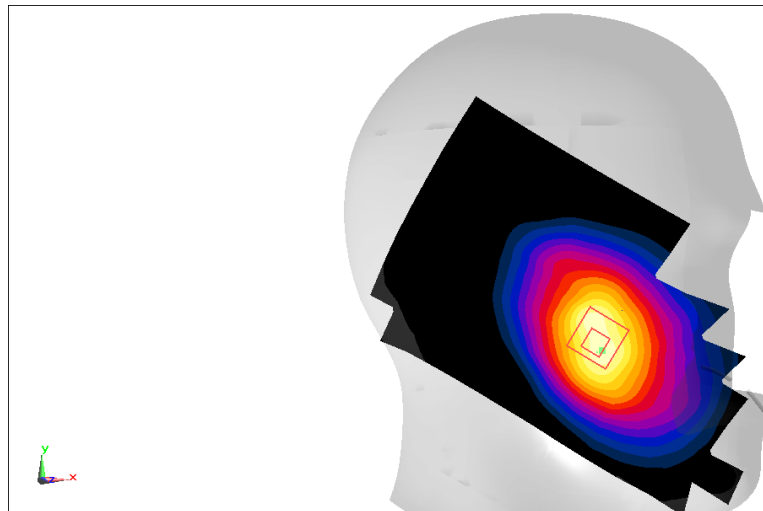
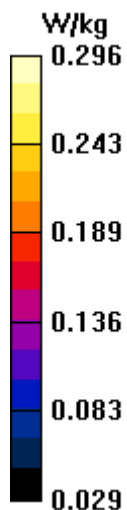


Fig A.12

## WCDMA850 Body

Date: 1/14/2022

Electronics: DAE4 Sn1525

Medium: h850

Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.855$  S/m;  $\epsilon_r = 45.107$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC

Liquid Temperature: 22.5oC

Communication System: WCDMA850 Frequency: 836.6 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(9.81, 9.81, 9.81)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.532 W/kg

Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 22.03 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.745 W/kg

SAR(1 g) = 0.361 W/kg; SAR(10 g) = 0.197 W/kg

Maximum value of SAR (measured) = 0.590 W/kg

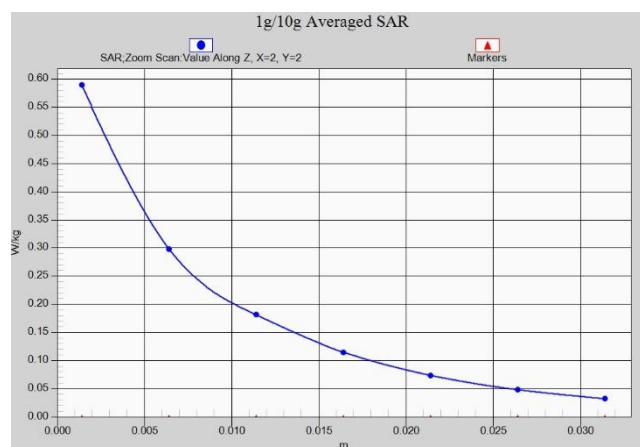
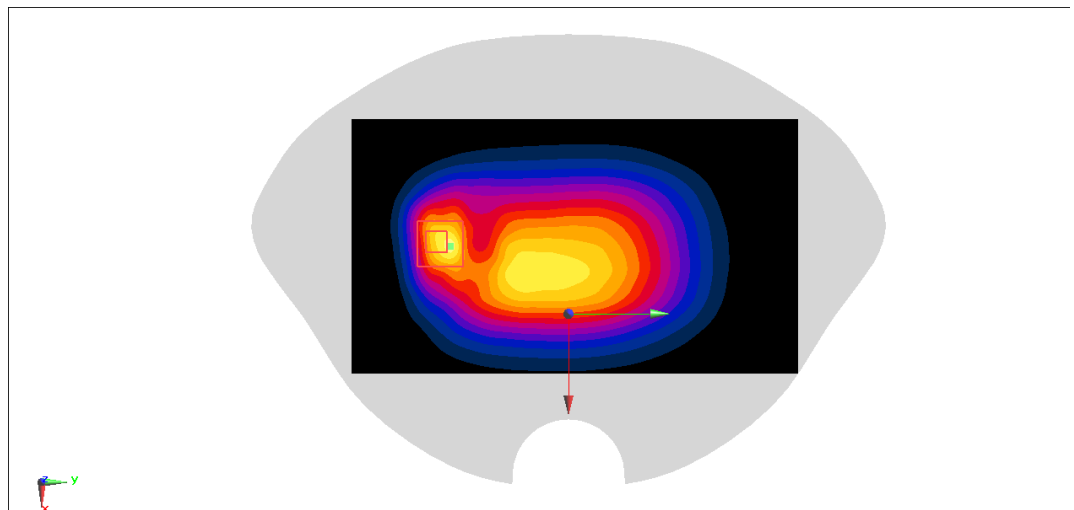
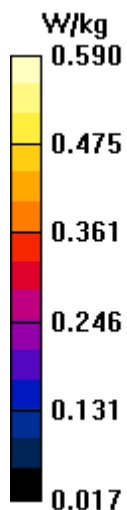


Fig A.13

## LTE Band12 Head

Date: 1/16/2022

Electronics: DAE4 Sn1525

Medium: H750

Medium parameters used (interpolated):  $f = 704 \text{ MHz}$ ;  $\sigma = 0.817 \text{ S/m}$ ;  $\epsilon_r = 44.504$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 23.3oC

Liquid Temperature: 22.5oC

Communication System: LTE Band12 Frequency: 704 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(9.81, 9.81, 9.81)

Area Scan (81x141x1): Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.187 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 6.854 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.203 W/kg

SAR(1 g) = 0.162 W/kg; SAR(10 g) = 0.130 W/kg

Maximum value of SAR (measured) = 0.188 W/kg

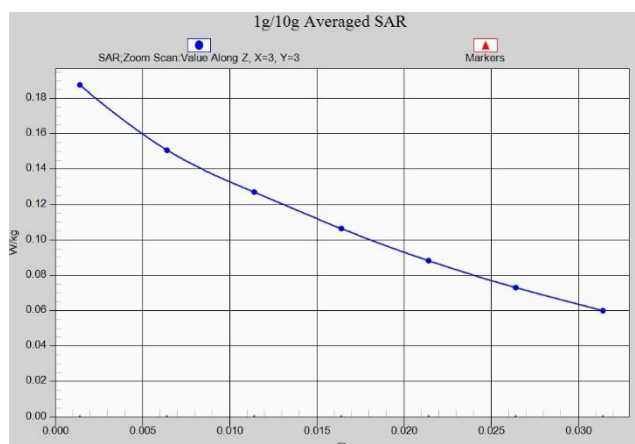
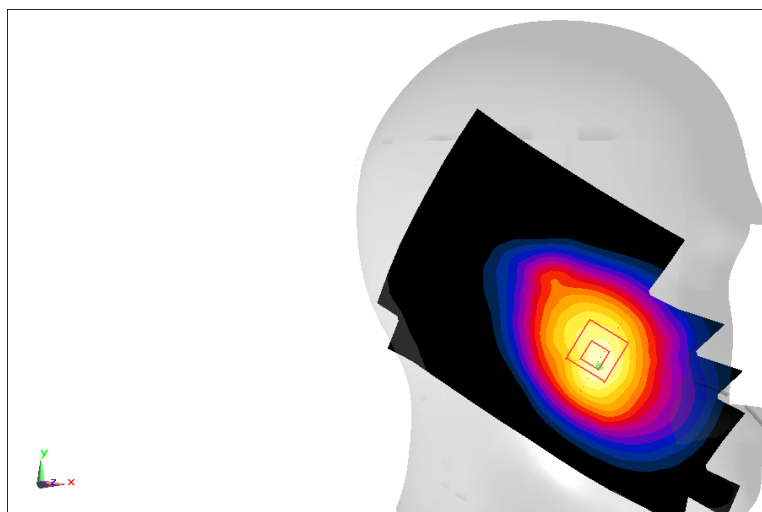
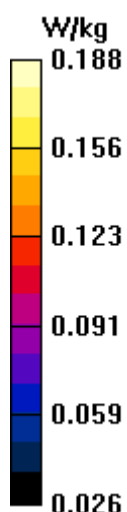


Fig A.14

## LTE Band12 Body

Date: 1/16/2022

Electronics: DAE4 Sn1525

Medium: H750

Medium parameters used (interpolated):  $f = 704 \text{ MHz}$ ;  $\sigma = 0.817 \text{ S/m}$ ;  $\epsilon_r = 44.504$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 23.3oC

Liquid Temperature: 22.5oC

Communication System: LTE Band12 Frequency: 704 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(9.81, 9.81, 9.81)

Area Scan (81x141x1): Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.422 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 20.38 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 0.469 W/kg

SAR(1 g) = 0.349 W/kg; SAR(10 g) = 0.269 W/kg

Maximum value of SAR (measured) = 0.423 W/kg

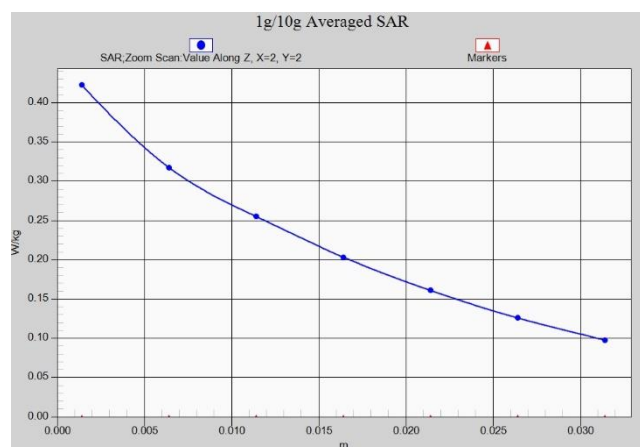
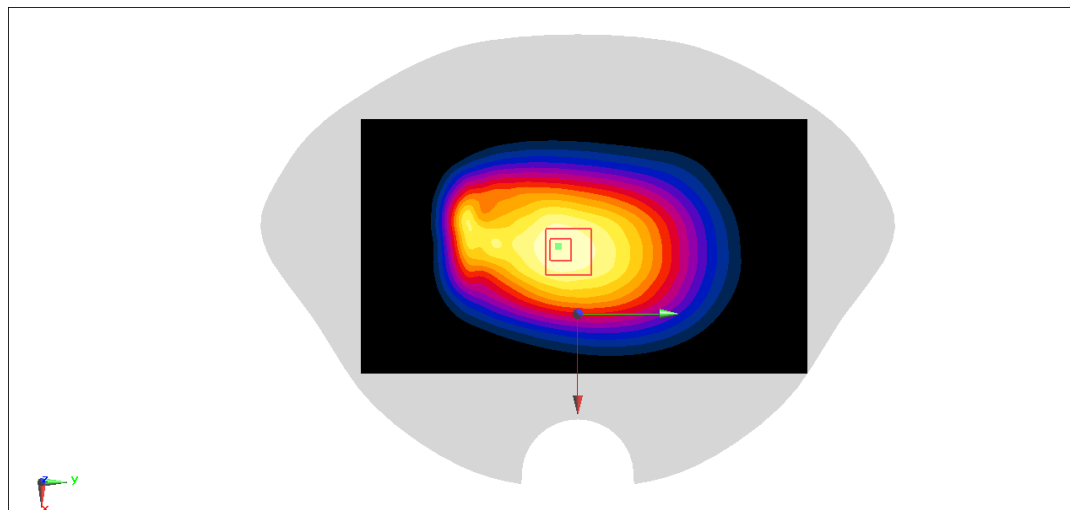
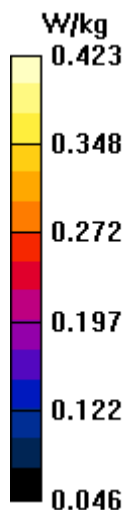


Fig A.15

## LTE Band13 Head

Date: 1/16/2022

Electronics: DAE4 Sn1525

Medium: h750

Medium parameters used (interpolated):  $f = 782 \text{ MHz}$ ;  $\sigma = 0.831 \text{ S/m}$ ;  $\epsilon_r = 45.336$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: LTE Band13 Frequency: 782 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(9.81, 9.81, 9.81)

Area Scan (81x141x1): Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.251 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 5.523 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.275 W/kg

SAR(1 g) = 0.210 W/kg; SAR(10 g) = 0.164 W/kg

Maximum value of SAR (measured) = 0.248 W/kg

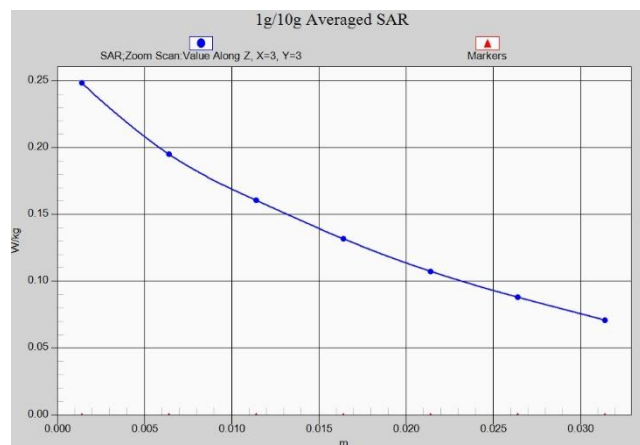
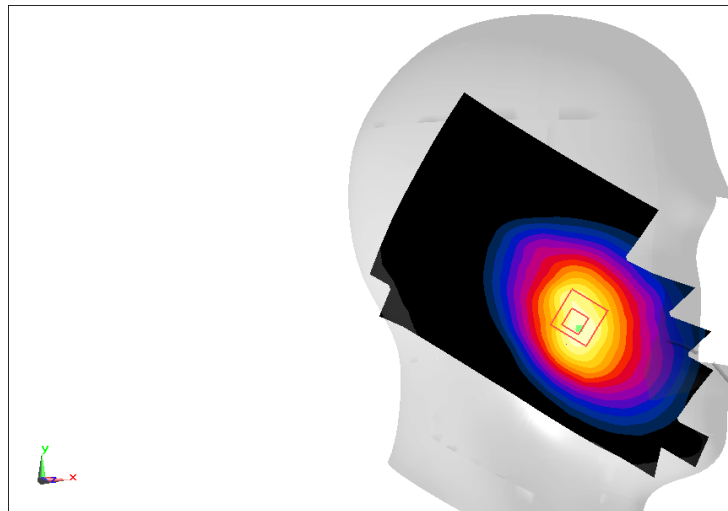
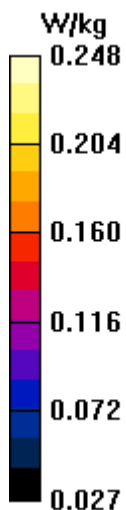


Fig A.16

## LTE Band13 Body

Date: 1/16/2022

Electronics: DAE4 Sn1525

Medium: h750

Medium parameters used (interpolated):  $f = 782 \text{ MHz}$ ;  $\sigma = 0.831 \text{ S/m}$ ;  $\epsilon_r = 45.336$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 23.3oC

Liquid Temperature: 22.5oC

Communication System: LTE Band13 Frequency: 782 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(9.81, 9.81, 9.81)

Area Scan (81x141x1): Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.499 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 19.21 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.630 W/kg

SAR(1 g) = 0.324 W/kg; SAR(10 g) = 0.192 W/kg

Maximum value of SAR (measured) = 0.499 W/kg

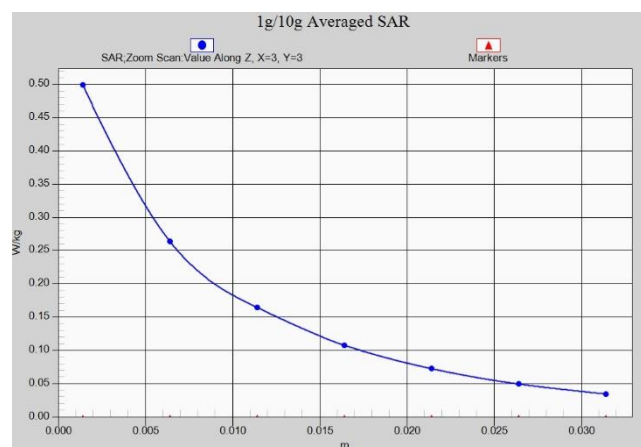
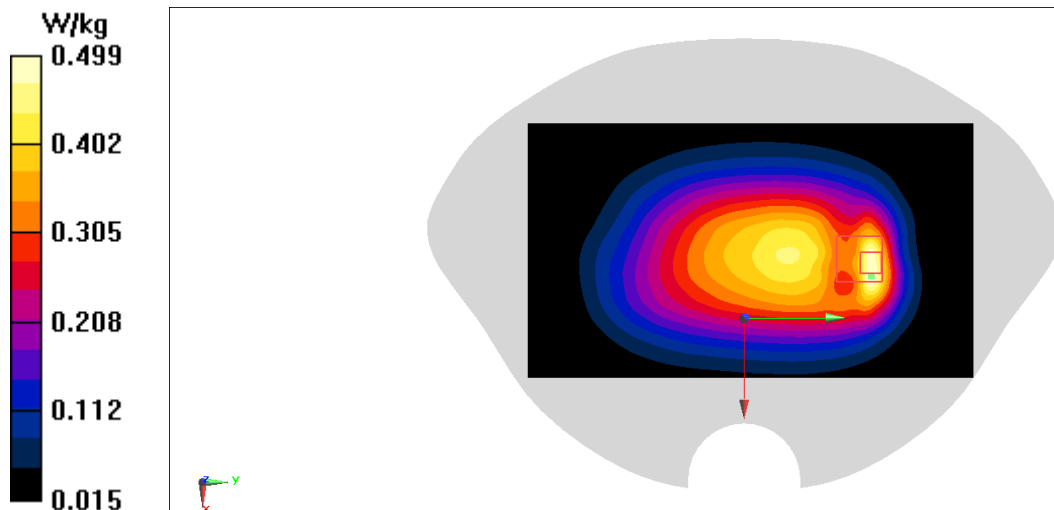


Fig A.17

## LTE Band25 Head

Date: 1/18/2022

Electronics: DAE4 Sn1525

Medium: h1900

Medium parameters used:  $f = 1905$  MHz;  $\sigma = 1.466$  S/m;  $\epsilon_r = 42.465$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: LTE Band25 Frequency: 1905 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(7.81, 7.81, 7.81)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.336 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.968 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.398 W/kg

SAR(1 g) = 0.215 W/kg; SAR(10 g) = 0.128 W/kg

Maximum value of SAR (measured) = 0.302 W/kg

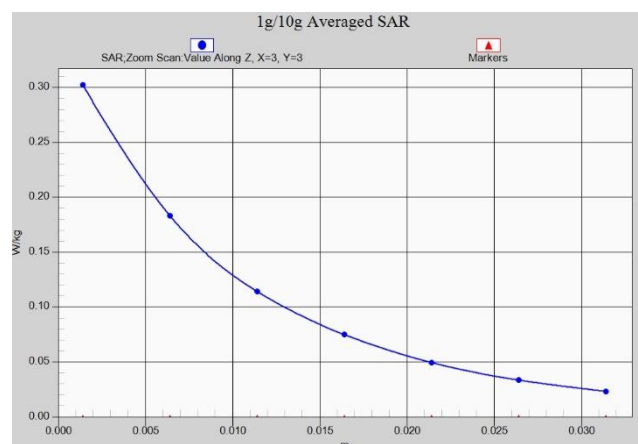
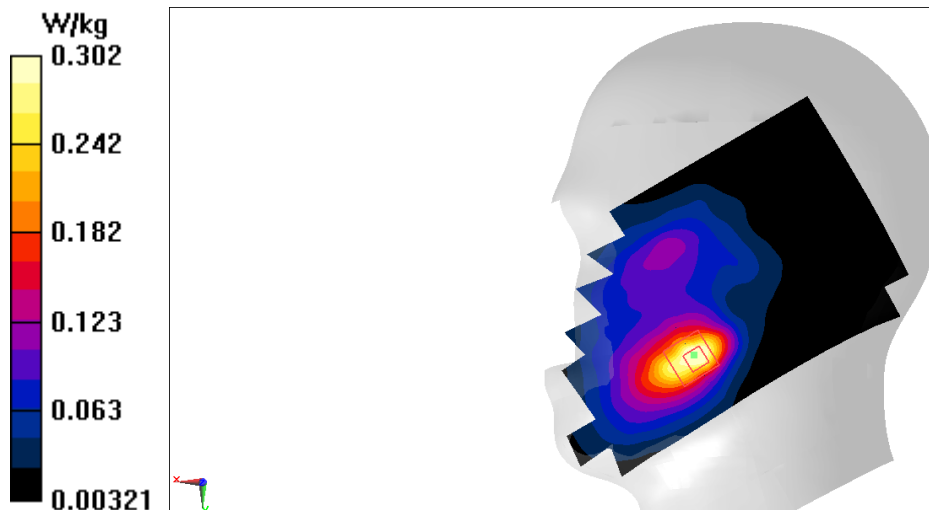


Fig A.18

## LTE Band25 Body

Date: 1/18/2022

Electronics: DAE4 Sn1525

Medium: h1900

Medium parameters used:  $f = 1905$  MHz;  $\sigma = 1.466$  S/m;  $\epsilon_r = 42.465$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC      Liquid Temperature: 22.5oC

Communication System: LTE Band25    Frequency: 1905 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(7.81, 7.81, 7.81)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.569 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.333 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.725 W/kg

SAR(1 g) = 0.392 W/kg; SAR(10 g) = 0.210 W/kg

Maximum value of SAR (measured) = 0.603 W/kg

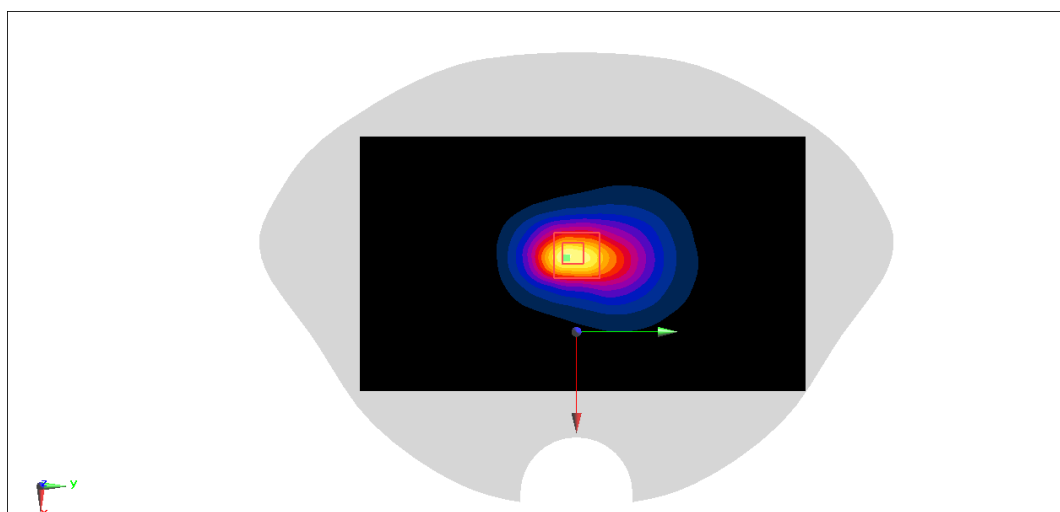
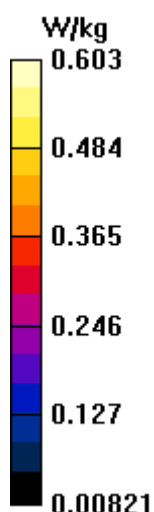


Fig A.19

## LTE Band25 Body

Date: 1/18/2022

Electronics: DAE4 Sn1525

Medium: h1900

Medium parameters used:  $f = 1905$  MHz;  $\sigma = 1.466$  S/m;  $\epsilon_r = 42.465$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: LTE Band25 Frequency: 1905 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(7.81, 7.81, 7.81)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.502 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.484 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.566 W/kg

SAR(1 g) = 0.310 W/kg; SAR(10 g) = 0.180 W/kg

Maximum value of SAR (measured) = 0.462 W/kg

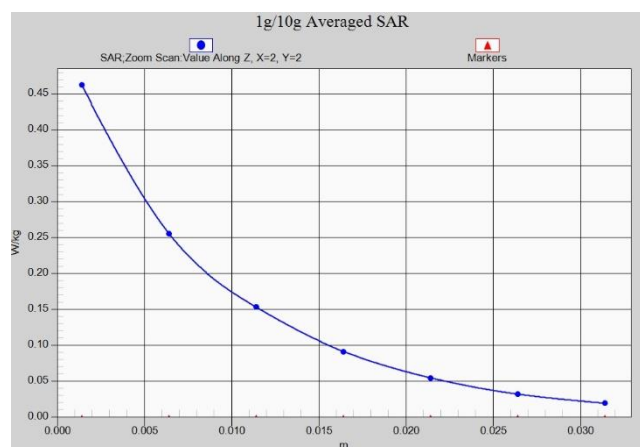
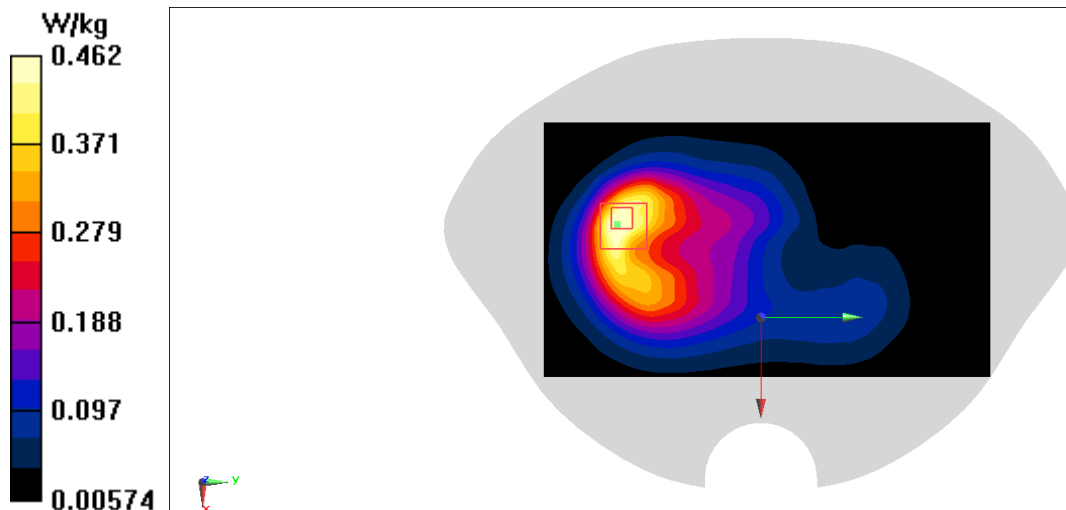


Fig A.20

## LTE Band26 Head

Date: 1/14/2022

Electronics: DAE4 Sn1525

Medium: h850

Medium parameters used (interpolated):  $f = 841.5$  MHz;  $\sigma = 0.857$  S/m;  $\epsilon_r = 45.097$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: LTE Band26 Frequency: 841.5 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(9.81, 9.81, 9.81)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm.

Maximum value of SAR (interpolated) = 0.262 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.721 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.283 W/kg

SAR(1 g) = 0.224 W/kg; SAR(10 g) = 0.177 W/kg

Maximum value of SAR (measured) = 0.262 W/kg

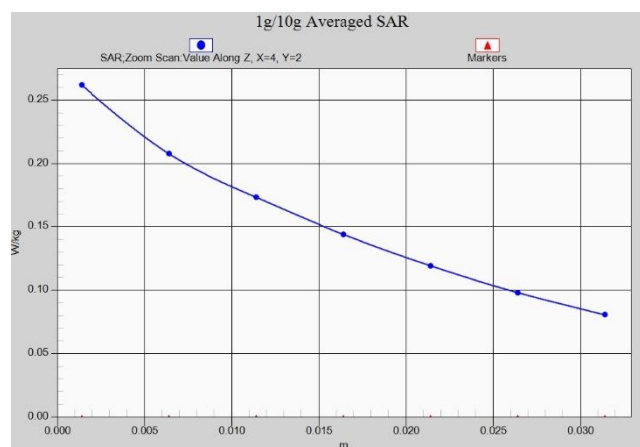
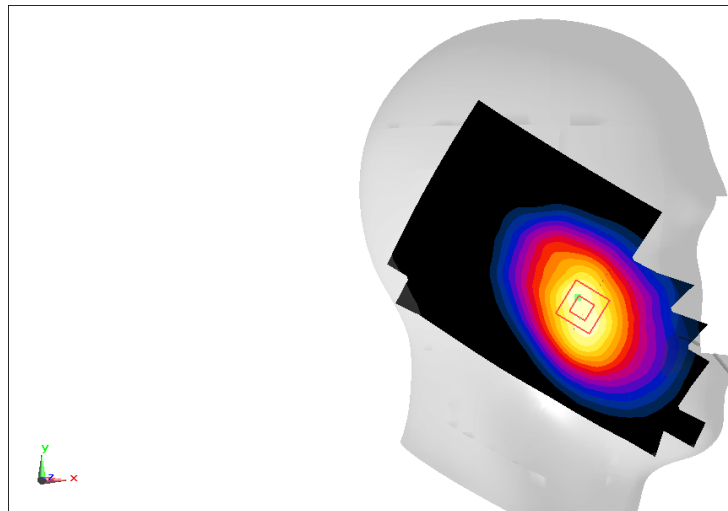
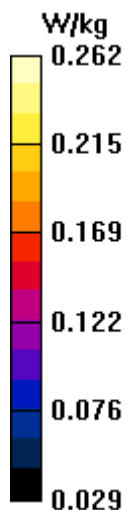


Fig A.21

## LTE Band26 Body

Date: 1/14/2022

Electronics: DAE4 Sn1525

Medium: h850

Medium parameters used (interpolated):  $f = 841.5$  MHz;  $\sigma = 0.857$  S/m;  $\epsilon_r = 45.097$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC

Liquid Temperature: 22.5oC

Communication System: LTE Band26 Frequency: 841.5 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(9.81, 9.81, 9.81)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.433 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.68 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.558 W/kg

SAR(1 g) = 0.293 W/kg; SAR(10 g) = 0.162 W/kg

Maximum value of SAR (measured) = 0.454 W/kg

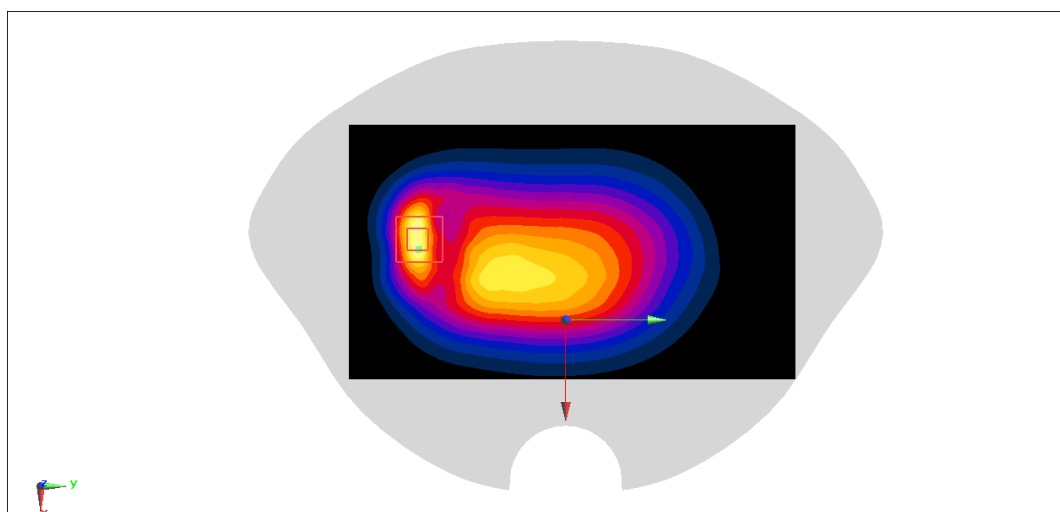
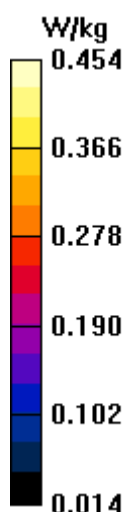


Fig A.22

## LTE Band41 Head

Date: 1/13/2022

Electronics: DAE4 Sn1525

Medium: h2600

Medium parameters used:  $f = 2680$  MHz;  $\sigma = 2.127$  S/m;  $\epsilon_r = 40.845$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: LTE Band41 Frequency: 2680 MHz Duty Cycle: 1:1.5787

Probe: EX3DV4 - SN7517 ConvF(7.1, 7.1, 7.1)

Area Scan (101x171x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.209 W/kg

Zoom Scan (9x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.422 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.247 W/kg

SAR(1 g) = 0.132 W/kg; SAR(10 g) = 0.070 W/kg

Maximum value of SAR (measured) = 0.198 W/kg

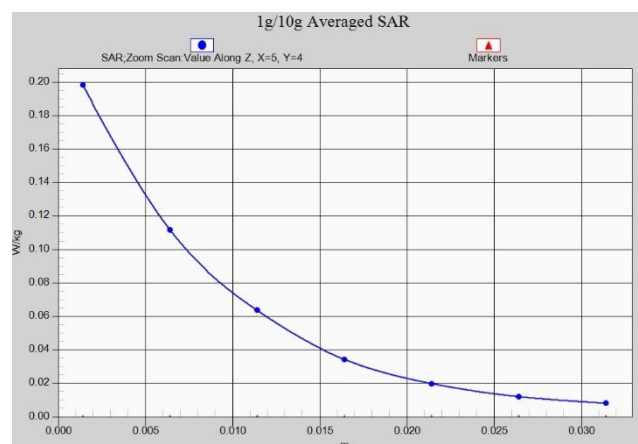
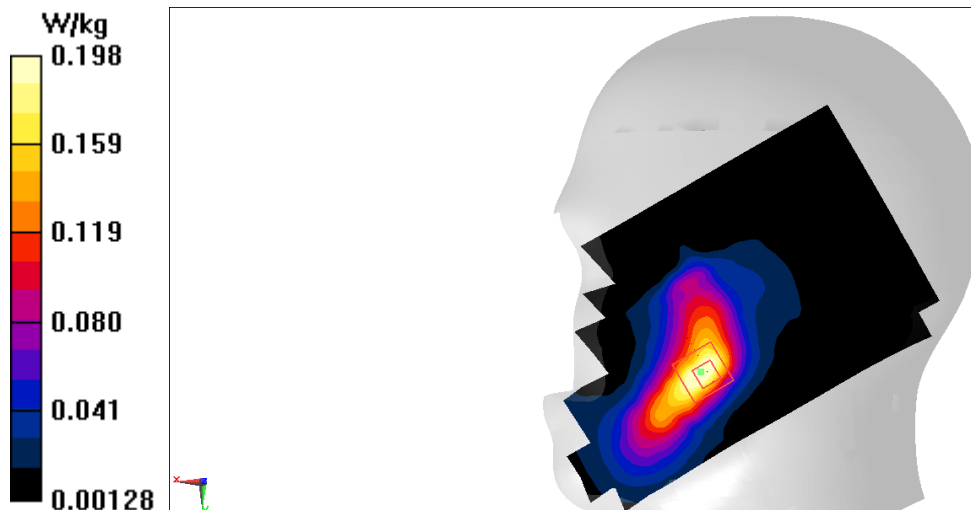


Fig A.23

## LTE Band41 Body

Date: 1/13/2022

Electronics: DAE4 Sn1525

Medium: h2600

Medium parameters used:  $f = 2680$  MHz;  $\sigma = 2.127$  S/m;  $\epsilon_r = 40.845$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: LTE Band41 Frequency: 2680 MHz Duty Cycle: 1:1.5787

Probe: EX3DV4 - SN7517 ConvF(7.1, 7.1, 7.1)

Area Scan (61x131x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.874 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.948 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.04 W/kg

SAR(1 g) = 0.483 W/kg; SAR(10 g) = 0.215 W/kg

Maximum value of SAR (measured) = 0.825 W/kg

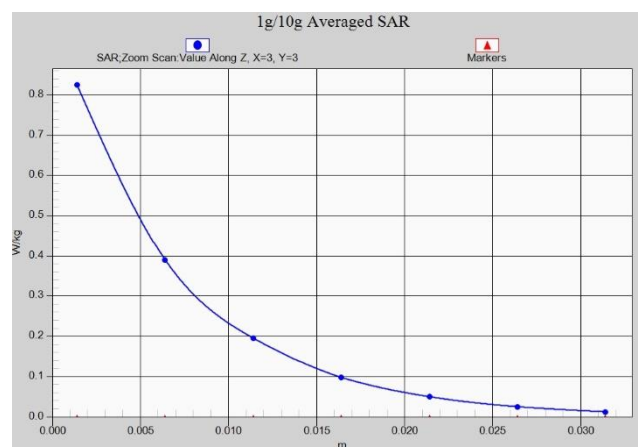
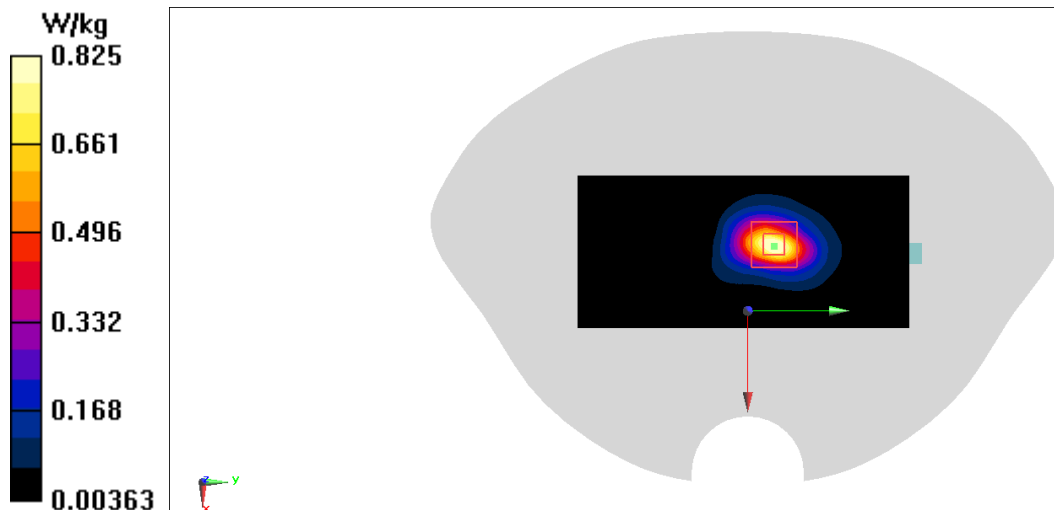


Fig A.24

## LTE Band41 Body

Date: 1/13/2022

Electronics: DAE4 Sn1525

Medium: h2600

Medium parameters used (interpolated):  $f = 2506$  MHz;  $\sigma = 1.972$  S/m;  $\epsilon_r = 41.178$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: LTE Band41 Frequency: 2506 MHz Duty Cycle: 1:1.5787

Probe: EX3DV4 - SN7517 ConvF(7.34, 7.34, 7.34)

Area Scan (101x181x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.598 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.337 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.699 W/kg

SAR(1 g) = 0.359 W/kg; SAR(10 g) = 0.180 W/kg

Maximum value of SAR (measured) = 0.573 W/kg

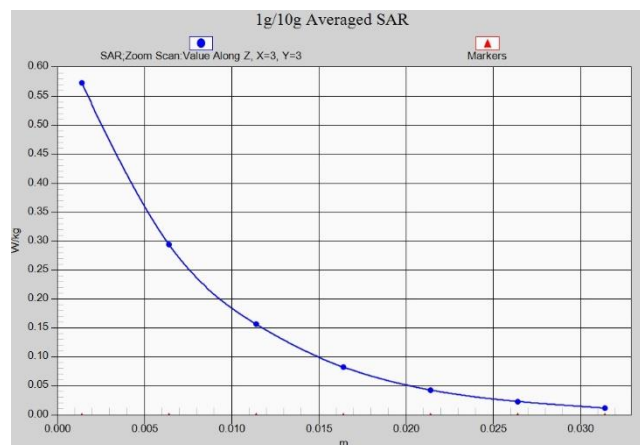
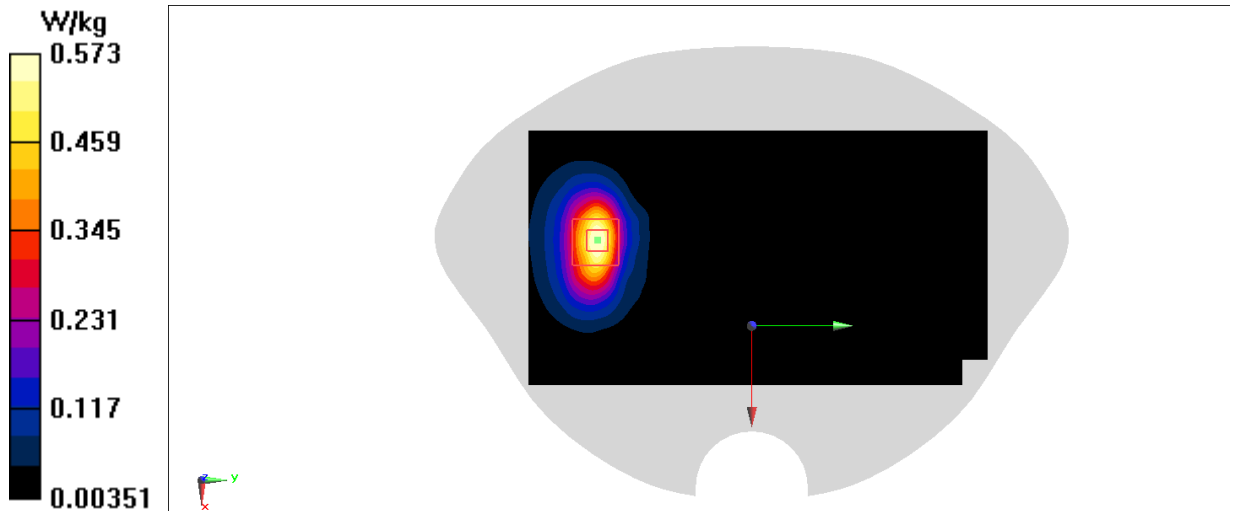


Fig A.25

## LTE Band41 Head

Date: 1/13/2022

Electronics: DAE4 Sn1525

Medium: h2600

Medium parameters used:  $f = 2680$  MHz;  $\sigma = 2.127$  S/m;  $\epsilon_r = 40.845$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: LTE Band41 Frequency: 2680 MHz Duty Cycle: 1:2.309

Probe: EX3DV4 - SN7517 ConvF(7.1, 7.1, 7.1)

Area Scan (101x171x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.373 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.385 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.438 W/kg

SAR(1 g) = 0.238 W/kg; SAR(10 g) = 0.125 W/kg

Maximum value of SAR (measured) = 0.361 W/kg

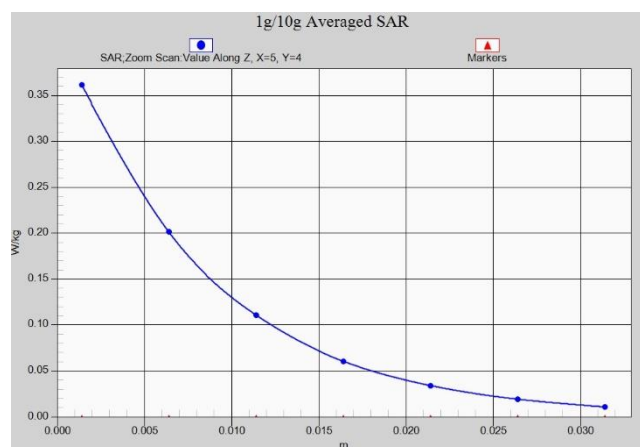
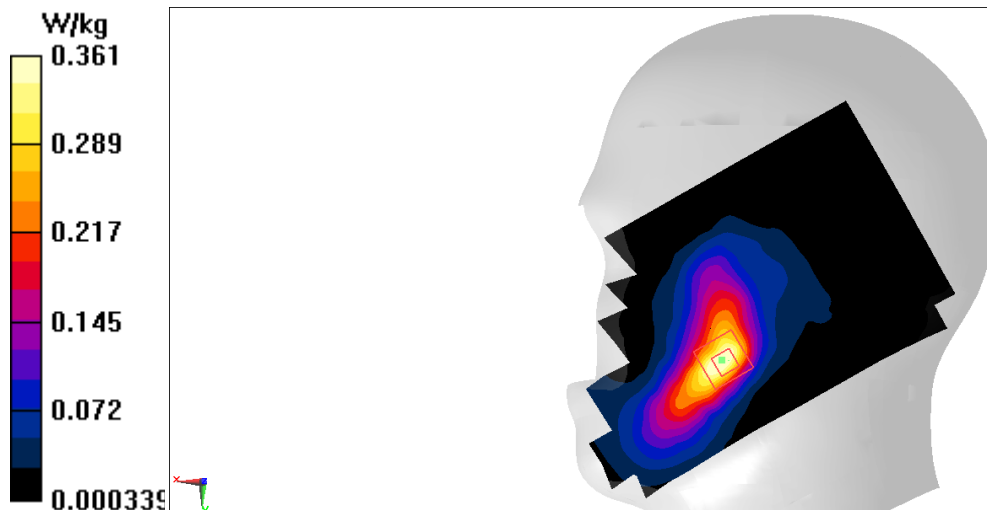


Fig A.26

## LTE Band41 Body

Date: 1/13/2022

Electronics: DAE4 Sn1525

Medium: h2600

Medium parameters used:  $f = 2680$  MHz;  $\sigma = 2.127$  S/m;  $\epsilon_r = 40.845$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: LTE Band41 Frequency: 2680 MHz Duty Cycle: 1:2.309

Probe: EX3DV4 - SN7517 ConvF(7.1, 7.1, 7.1)

Area Scan (61x131x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.08 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.893 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.29 W/kg

SAR(1 g) = 0.600 W/kg; SAR(10 g) = 0.269 W/kg

Maximum value of SAR (measured) = 1.01 W/kg

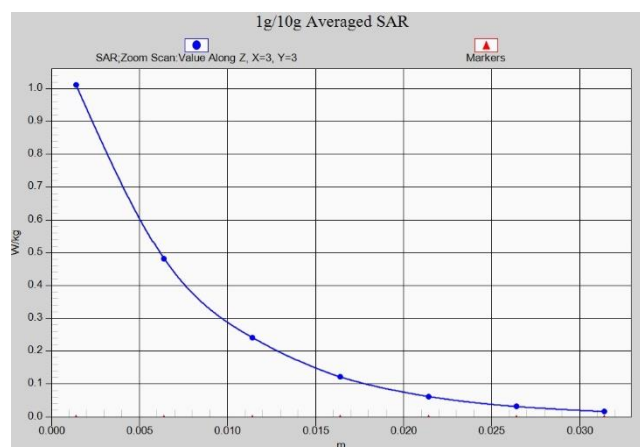
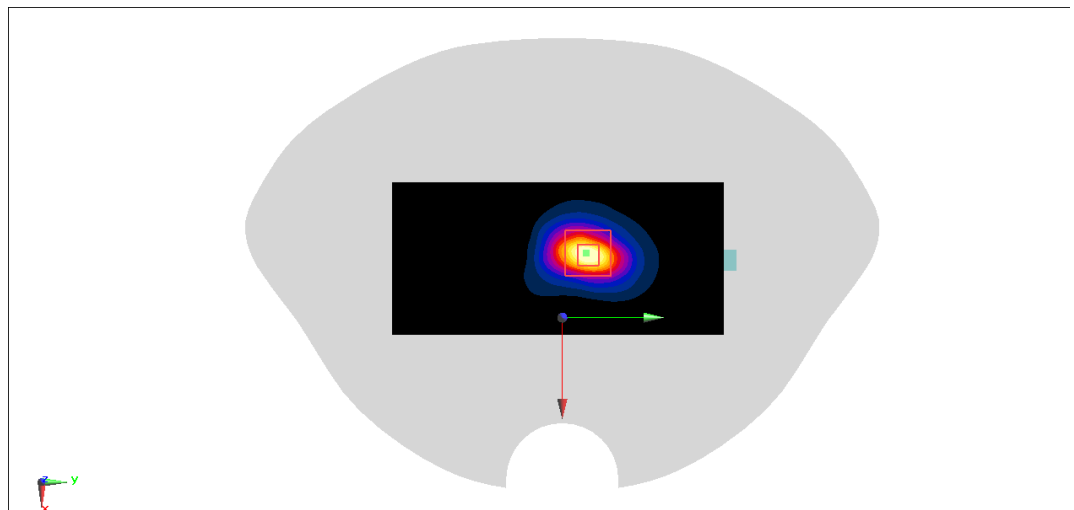
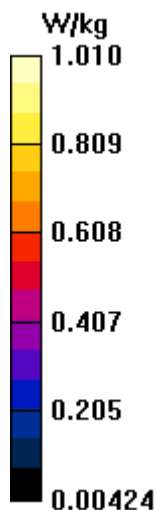


Fig A.27

## LTE Band41 Body

Date: 1/13/2022

Electronics: DAE4 Sn1525

Medium: h2600

Medium parameters used:  $f = 2680$  MHz;  $\sigma = 2.127$  S/m;  $\epsilon_r = 40.845$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: LTE Band41 Frequency: 2680 MHz Duty Cycle: 1:2.309

Probe: EX3DV4 - SN7517 ConvF(7.1, 7.1, 7.1)

Area Scan (101x181x1): Interpolated grid:  $dx=1.200$  mm,  $dy=1.200$  mm

Maximum value of SAR (interpolated) = 0.645 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 5.349 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.791 W/kg

SAR(1 g) = 0.391 W/kg; SAR(10 g) = 0.189 W/kg

Maximum value of SAR (measured) = 0.636 W/kg

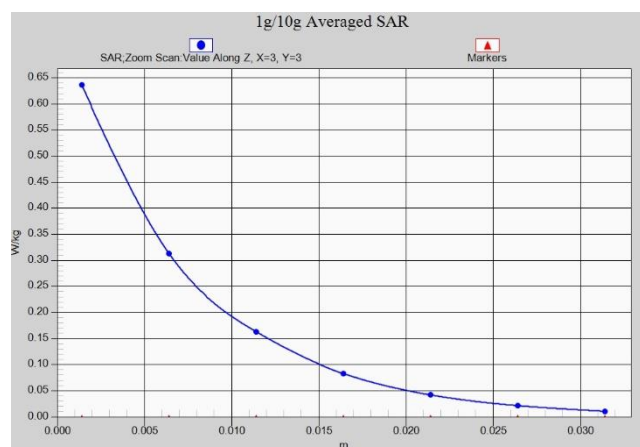
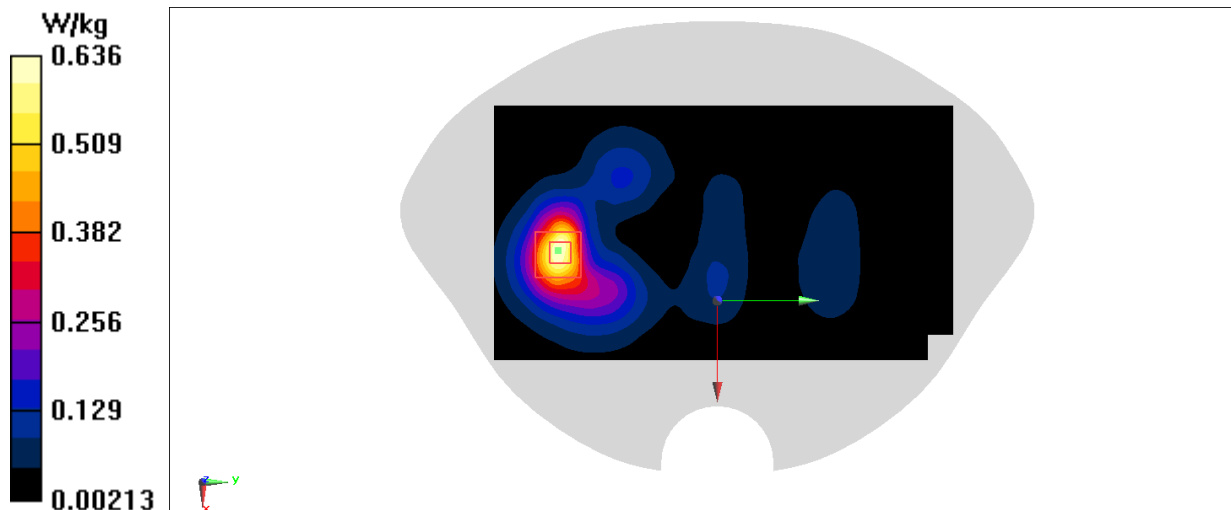


Fig A.28

## LTE Band66 Head

Date: 1/15/2022

Electronics: DAE4 Sn1525

Medium: h1750

Medium parameters used:  $f = 1720$  MHz;  $\sigma = 1.361$  S/m;  $\epsilon_r = 42.757$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: LTE Band66 Frequency: 1720 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(8.22, 8.22, 8.22)

Area Scan (81x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.511 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.458 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.542 W/kg

SAR(1 g) = 0.361 W/kg; SAR(10 g) = 0.237 W/kg

Maximum value of SAR (measured) = 0.479 W/kg

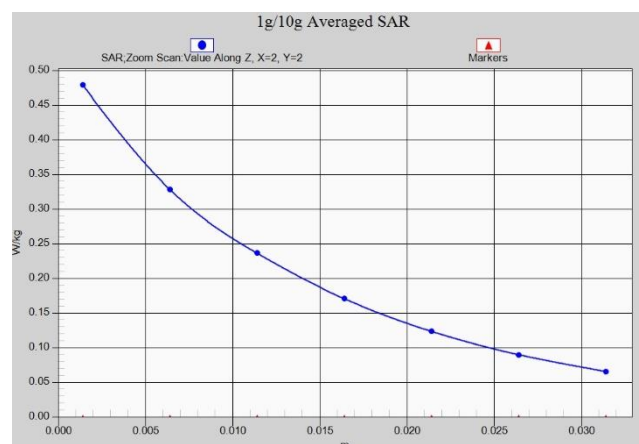
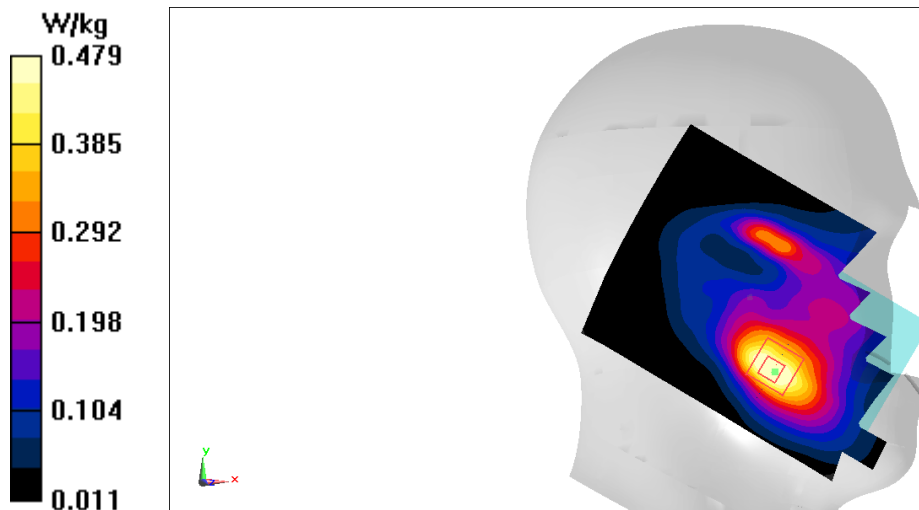


Fig A.29

## LTE Band66 Body

Date: 1/15/2022

Electronics: DAE4 Sn1525

Medium: h1750

Medium parameters used:  $f = 1720$  MHz;  $\sigma = 1.361$  S/m;  $\epsilon_r = 42.757$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: LTE Band66 Frequency: 1720 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(8.22, 8.22, 8.22)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.922 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.19 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 1.12 W/kg

SAR(1 g) = 0.587 W/kg; SAR(10 g) = 0.326 W/kg

Maximum value of SAR (measured) = 0.878 W/kg

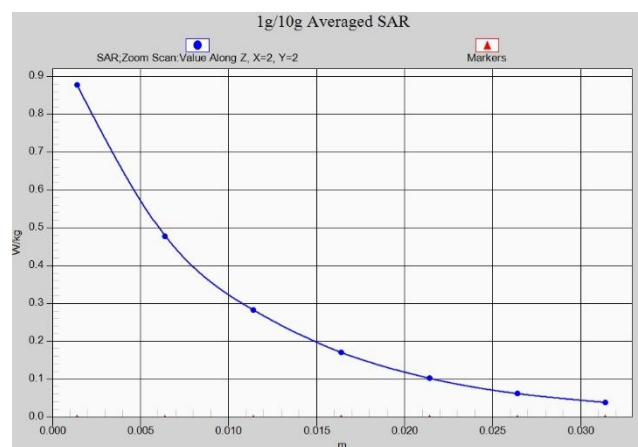
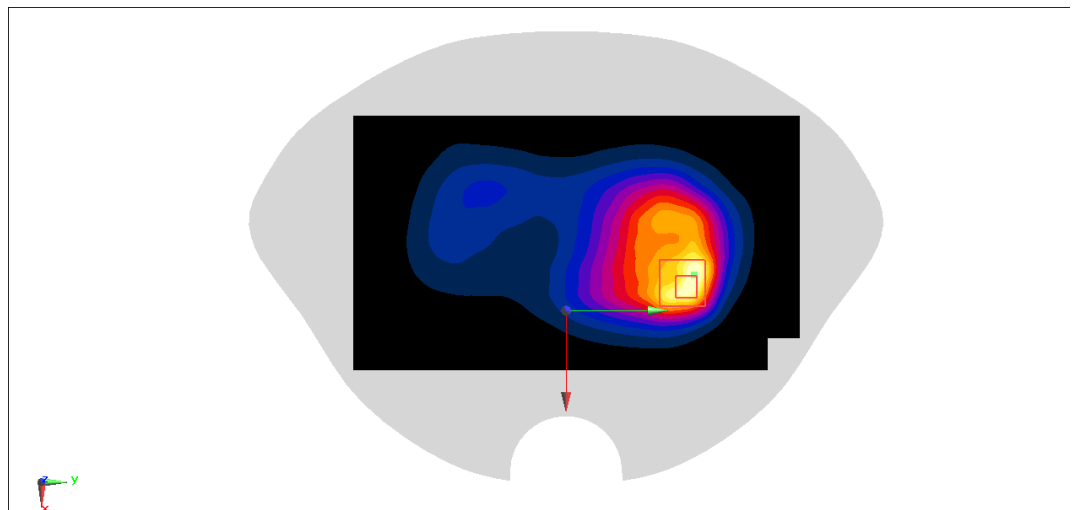
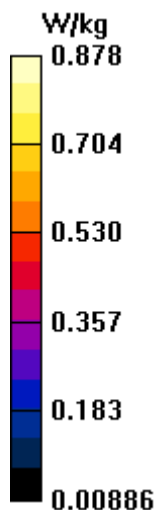


Fig A.30

## LTE Band66 Body

Date: 1/15/2022

Electronics: DAE4 Sn1525

Medium: h1750

Medium parameters used:  $f = 1720$  MHz;  $\sigma = 1.361$  S/m;  $\epsilon_r = 42.757$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: LTE Band66 Frequency: 1720 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(8.22, 8.22, 8.22)

Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.731 W/kg

Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.792 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.810 W/kg

SAR(1 g) = 0.476 W/kg; SAR(10 g) = 0.290 W/kg

Maximum value of SAR (measured) = 0.675 W/kg

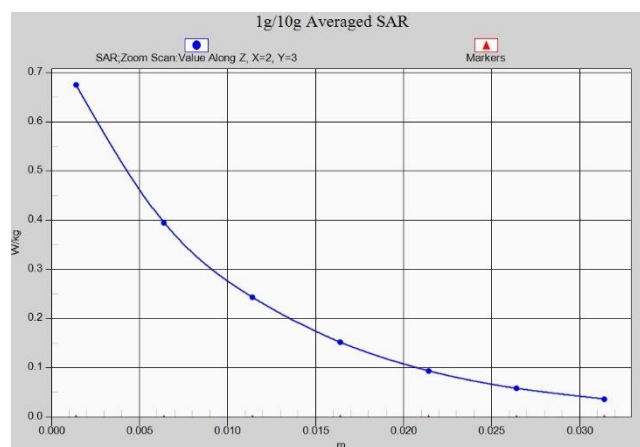
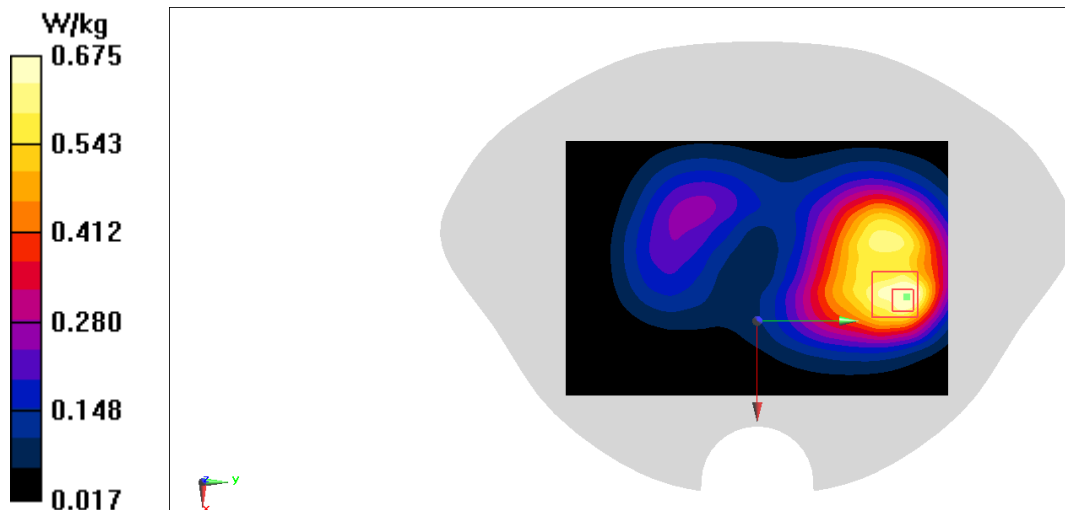


Fig A.31

## LTE Band71 Head

Date: 1/7/2022

Electronics: DAE4 Sn549

Medium: h750

Medium parameters used (extrapolated):  $f = 688 \text{ MHz}$ ;  $\sigma = 0.808 \text{ S/m}$ ;  $\epsilon_r = 45.256$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 23.3oC

Liquid Temperature: 22.5oC

Communication System: LTE Band71 Frequency: 688 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7600 ConvF(10.74, 10.74, 10.74)

Area Scan (81x131x1): Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.102 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 7.441 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.107 W/kg

SAR(1 g) = 0.084 W/kg; SAR(10 g) = 0.066 W/kg

Maximum value of SAR (measured) = 0.0986 W/kg

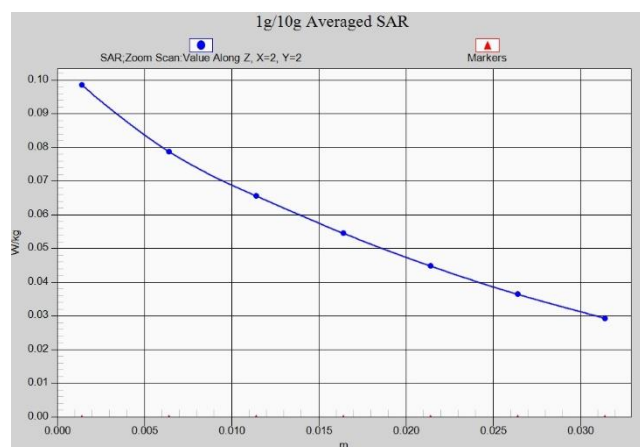
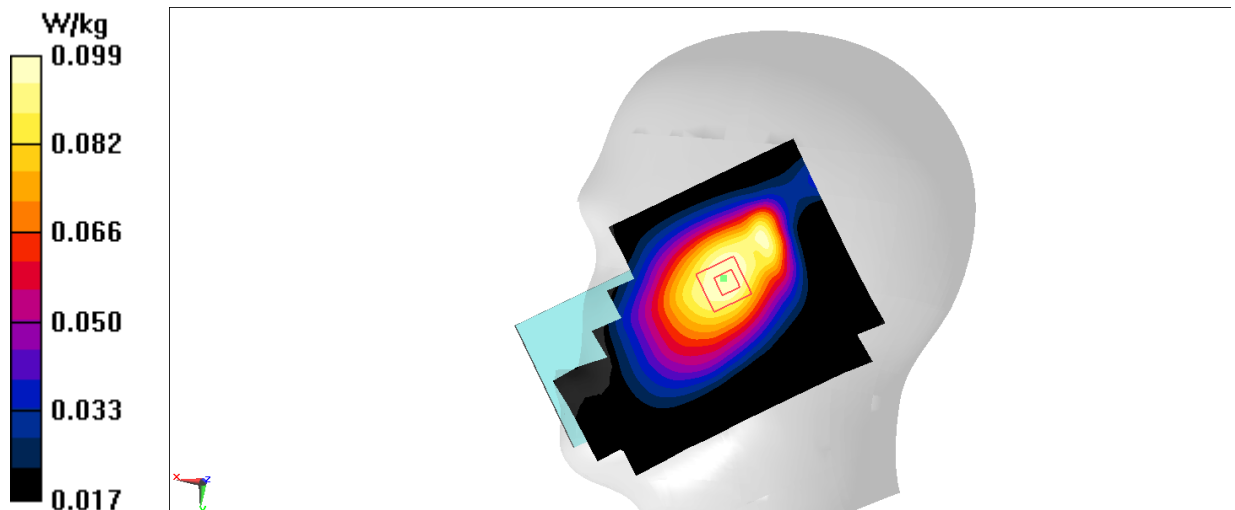


Fig A.32

## LTE Band71 Body

Date: 1/7/2022

Electronics: DAE4 Sn549

Medium: h750

Medium parameters used (extrapolated):  $f = 688 \text{ MHz}$ ;  $\sigma = 0.808 \text{ S/m}$ ;  $\epsilon_r = 45.256$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: LTE Band71 Frequency: 688 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7600 ConvF(10.74, 10.74, 10.74)

Body/Rear 10mm/Area Scan (81x121x1): Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.401 W/kg

Body/Rear 10mm/Zoom Scan (6x6x7)/Cube 0: Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 15.32 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.452 W/kg

SAR(1 g) = 0.319 W/kg; SAR(10 g) = 0.235 W/kg

Maximum value of SAR (measured) = 0.397 W/kg

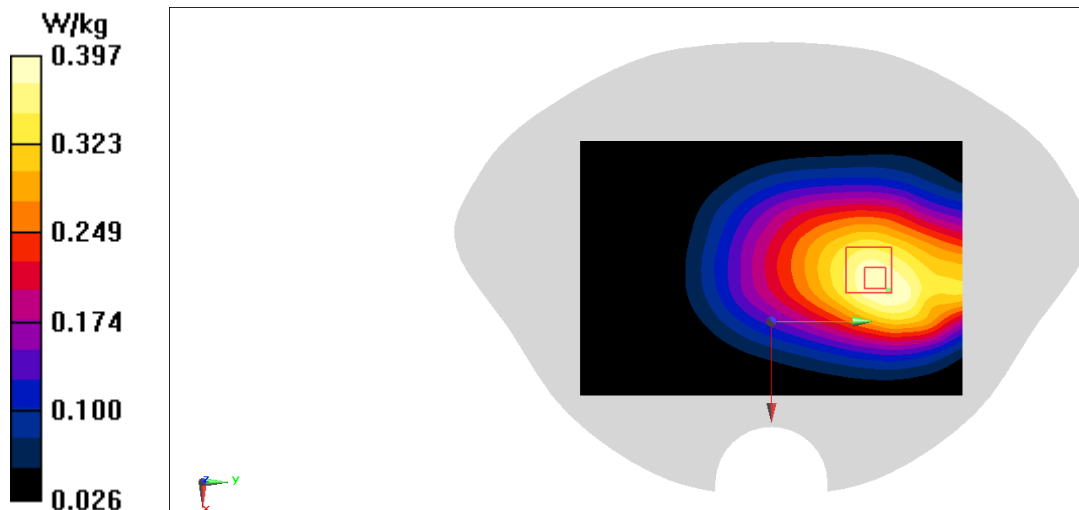


Fig A.33

## WIFI2450 Head

Date: 1/22/2022

Electronics: DAE4 Sn549

Medium: h2450

Medium parameters used (interpolated):  $f = 2412$  MHz;  $\sigma = 1.863$  S/m;  $\epsilon_r = 41.045$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC      Liquid Temperature: 22.5oC

Communication System: wifi 2450      Frequency: 2412 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7600 ConvF(7.82, 7.82, 7.82)

Area Scan (101x171x1): Interpolated grid:  $dx=1.200$  mm,  $dy=1.200$  mm

Maximum value of SAR (interpolated) = 0.375 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 11.03 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.476 W/kg

SAR(1 g) = 0.223 W/kg; SAR(10 g) = 0.104 W/kg

Maximum value of SAR (measured) = 0.372 W/kg

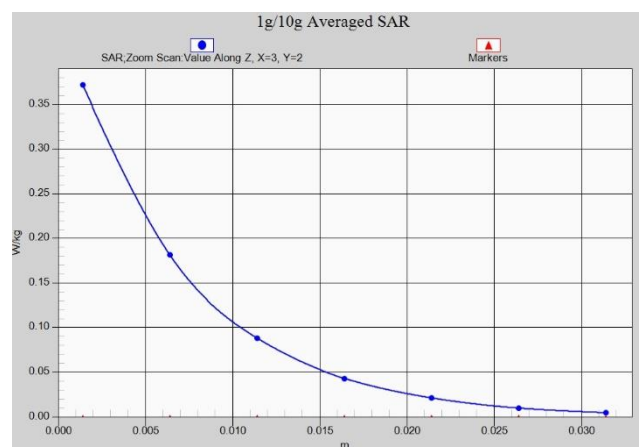
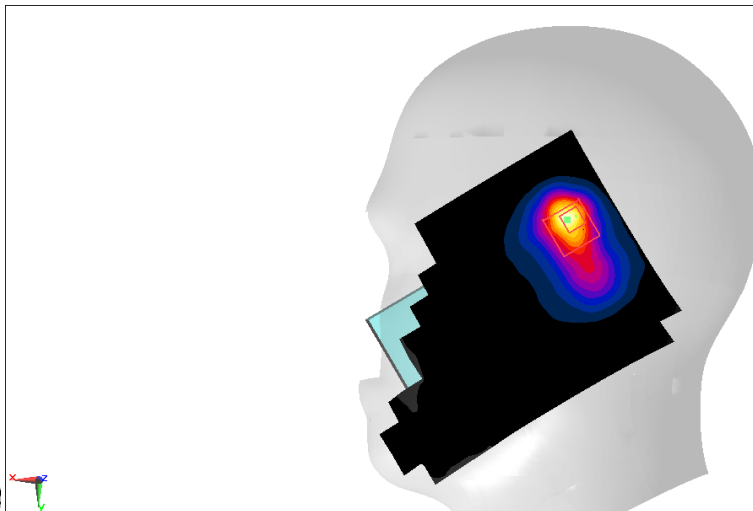
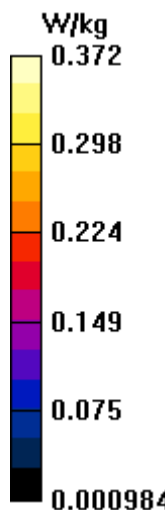


Fig A.34

## WIFI2450 Body

Date: 1/22/2022

Electronics: DAE4 Sn549

Medium: h2450

Medium parameters used (interpolated):  $f = 2412$  MHz;  $\sigma = 1.863$  S/m;  $\epsilon_r = 41.045$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC      Liquid Temperature: 22.5oC

Communication System: wifi 2450    Frequency: 2412 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7600 ConvF(7.82, 7.82, 7.82)

Area Scan (101x171x1): Interpolated grid:  $dx=1.200$  mm,  $dy=1.200$  mm

Maximum value of SAR (interpolated) = 0.480 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 8.920 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 0.588 W/kg

SAR(1 g) = 0.278 W/kg; SAR(10 g) = 0.140 W/kg.

Maximum value of SAR (measured) = 0.469 W/kg

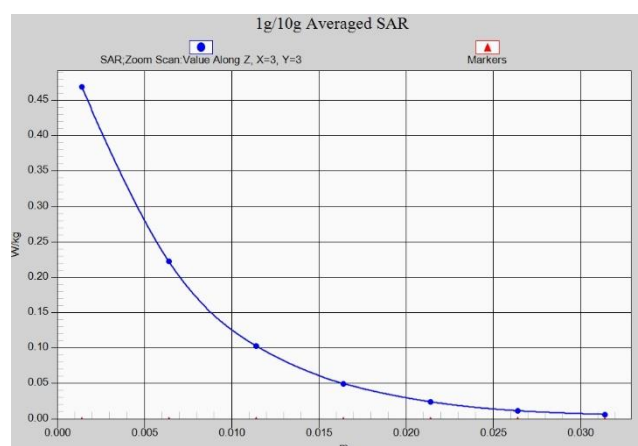
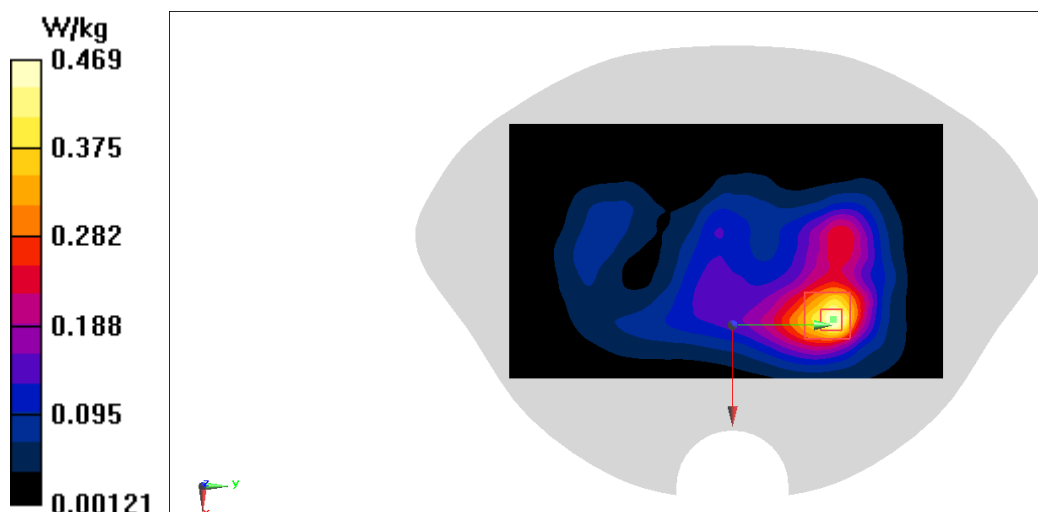


Fig A.35

## BT Head

Date: 1/22/2022

Electronics: DAE4 Sn549

Medium: h2450

Medium parameters used (interpolated):  $f = 2402$  MHz;  $\sigma = 1.856$  S/m;  $\epsilon_r = 41.06$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC      Liquid Temperature: 22.5oC

Communication System: Bluetooth      Frequency: 2402 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7600 ConvF(7.82, 7.82, 7.82)

Area Scan (81x141x1): Interpolated grid:  $dx=1.200$  mm,  $dy=1.200$  mm

Maximum value of SAR (interpolated) = 0.0871 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 2.708 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 0.143 W/kg

SAR(1 g) = 0.034 W/kg; SAR(10 g) = 0.011 W/kg

Maximum value of SAR (measured) = 0.0678 W/kg

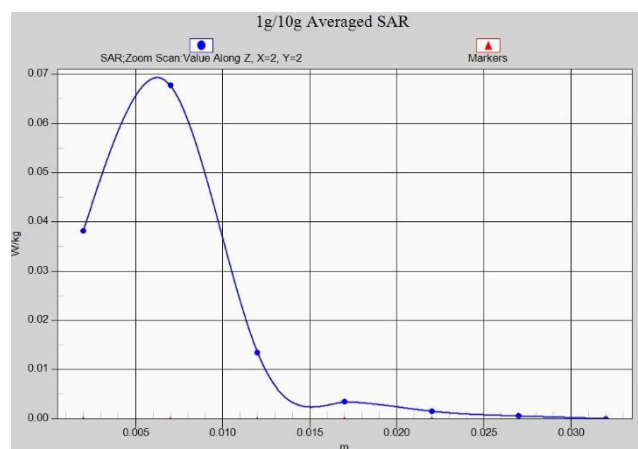
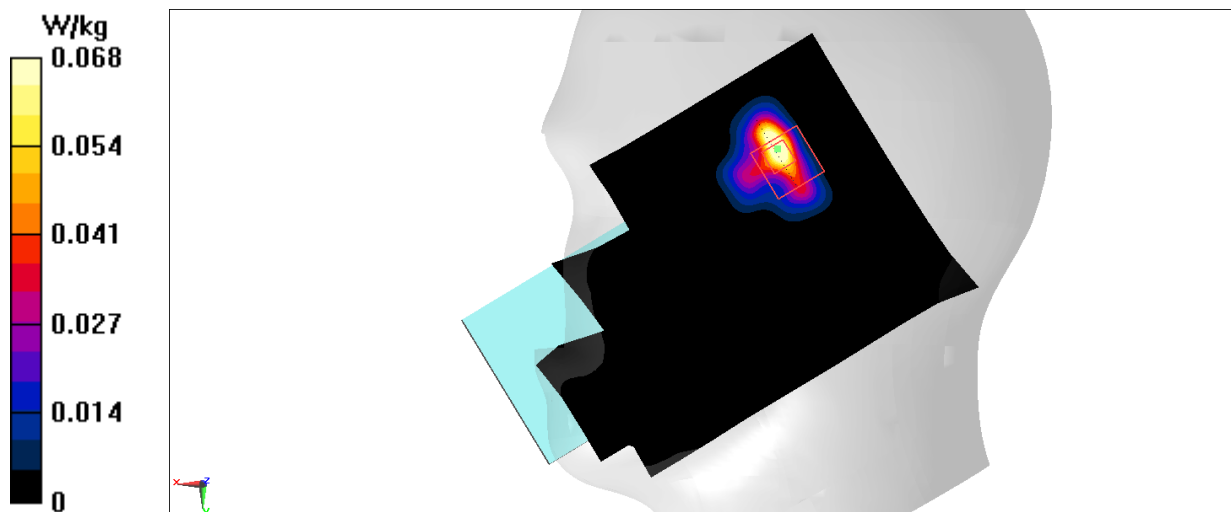


Fig A.36

## BT Body

Date: 1/22/2022

Electronics: DAE4 Sn549

Medium: h2450

Medium parameters used (interpolated):  $f = 2402$  MHz;  $\sigma = 1.856$  S/m;  $\epsilon_r = 41.06$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3oC Liquid Temperature: 22.5oC

Communication System: Bluetooth Frequency: 2402 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7600 ConvF(7.82, 7.82, 7.82)

5MM/Rear 10mm/Area Scan (71x131x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0255 W/kg

5MM/Rear 10mm/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 0.9660 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 0.0240 W/kg

SAR(1 g) = 0.011 W/kg; SAR(10 g) = 0.0048 W/kg

Maximum value of SAR (measured) = 0.0168 W/kg

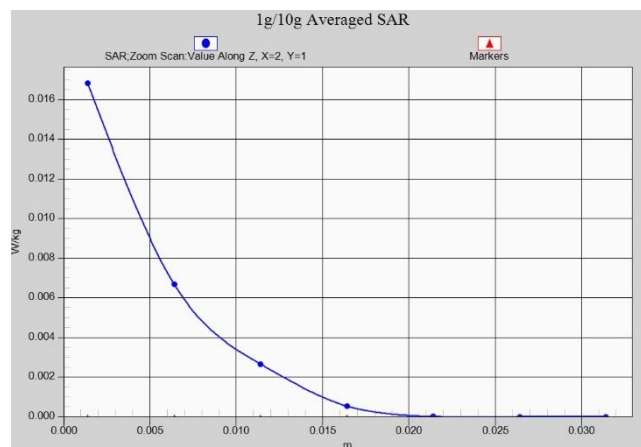
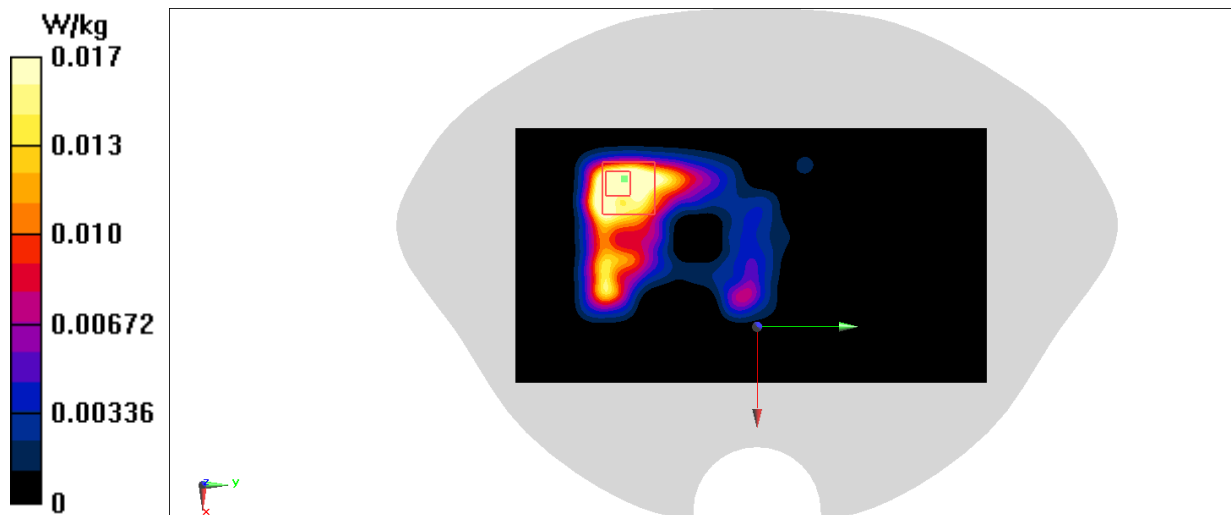


Fig A.37

## ANNEX B System Verification Results

### 750 MHz

Date: 1/7/2022

Electronics: DAE4 Sn549

Medium: h750

Medium parameters used:  $f = 750$  MHz;  $\sigma = 0.835$  S/m;  $\epsilon_r = 45.057$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.30C Liquid Temperature: 22.50C

Communication System: CW Frequency: 750 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7600 ConvF(10.74, 10.74, 10.74)

Area Scan (51x141x1): Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm

Reference Value = 54.32 V/m; Power Drift = 0.11 dB

Fast SAR: SAR(1 g) = 2.09 W/kg; SAR(10 g) = 1.38 W/kg

Maximum value of SAR (interpolated) = 2.71 W/kg

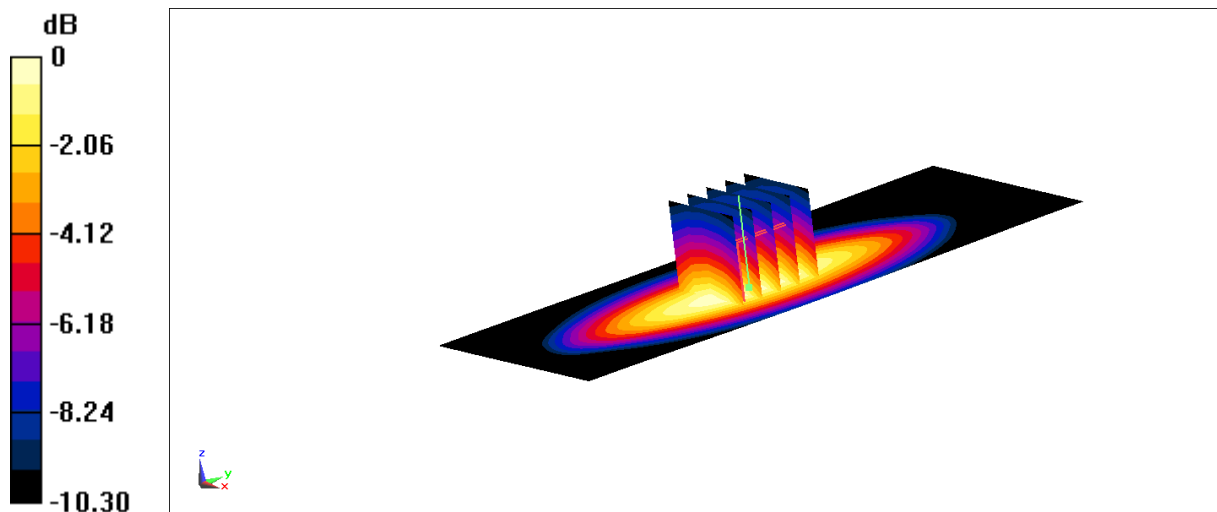
Zoom Scan (5x5x7)/Cube 0: Measurement grid:  $dx=8$ mm,  $dy=8$ mm,  $dz=5$ mm

Reference Value = 54.32 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 3.15 W/kg

SAR(1 g) = 2.03 W/kg; SAR(10 g) = 1.34 W/kg

Maximum value of SAR (measured) = 2.73 W/kg



$$0 \text{ dB} = 2.73 \text{ W/kg} = 4.36 \text{ dBW/kg}$$

**Fig.B.1 validation 750 MHz 250mW**

## 750 MHz

Date: 1/16/2022

Electronics: DAE4 Sn1525

Medium: H750

Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.838 \text{ S/m}$ ;  $\epsilon_r = 44.323$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 23.30C Liquid Temperature: 22.50C

Communication System: CW Frequency: 750 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(9.81, 9.81, 9.81)

Area Scan (51x141x1): Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 45.09 V/m; Power Drift = 0.12 dB

Fast SAR: SAR(1 g) = 2.24 W/kg; SAR(10 g) = 1.49 W/kg

Maximum value of SAR (interpolated) = 2.89 W/kg

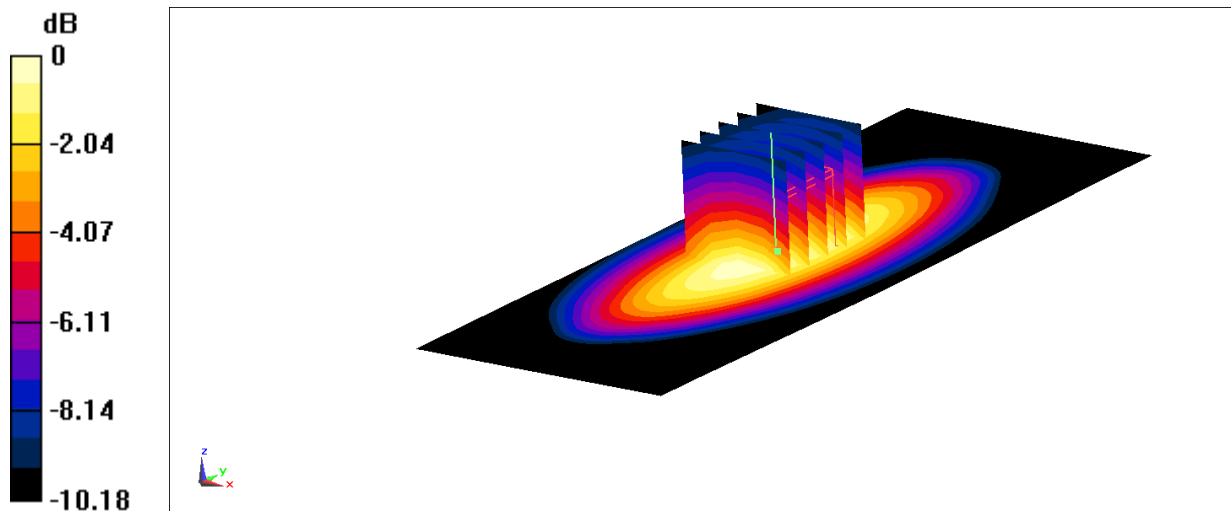
Zoom Scan (5x5x7)/Cube 0: Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 45.09 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 3.38 W/kg

SAR(1 g) = 2.18 W/kg; SAR(10 g) = 1.45 W/kg

Maximum value of SAR (measured) = 2.87 W/kg



$$0 \text{ dB} = 2.87 \text{ W/kg} = 4.58 \text{ dBW/kg}$$

**Fig.B.2 validation 750 MHz 250mW**

## 835 MHz

Date: 1/14/2022

Electronics: DAE4 Sn1525

Medium: h850

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.854 \text{ S/m}$ ;  $\epsilon_r = 45.109$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 23.30C Liquid Temperature: 22.50C

Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(9.81, 9.81, 9.81)

Area Scan (51x141x1): Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 60.17 V/m; Power Drift = 0.07 dB

Fast SAR: SAR(1 g) = 2.55 W/kg; SAR(10 g) = 1.62 W/kg

Maximum value of SAR (interpolated) = 3.34 W/kg

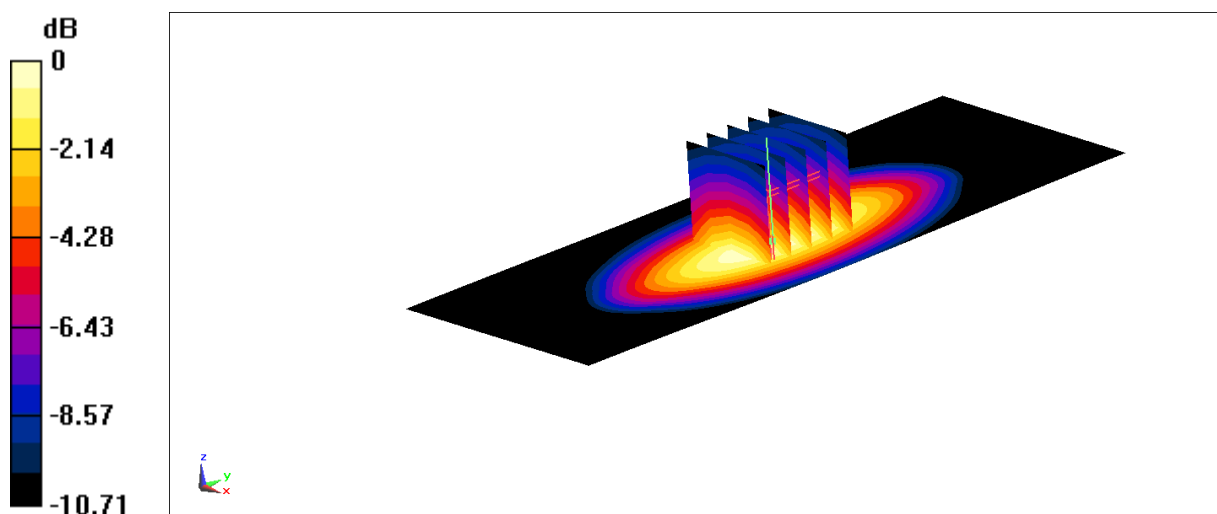
Zoom Scan (5x5x7)/Cube 0: Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 60.17 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 4.02 W/kg

SAR(1 g) = 2.51 W/kg; SAR(10 g) = 1.64 W/kg

Maximum value of SAR (measured) = 3.42 W/kg



$$0 \text{ dB} = 3.42 \text{ W/kg} = 5.34 \text{ dBW/kg}$$

**Fig.B.3 validation 835 MHz 250mW**

## 835 MHz

Date: 1/20/2022

Electronics: DAE4 Sn549

Medium: H835

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.862 \text{ S/m}$ ;  $\epsilon_r = 44.113$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 23.30C Liquid Temperature: 22.50C

Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7600 ConvF(10.74, 10.74, 10.74)

Area Scan (51x141x1): Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 53.08 V/m; Power Drift = 0.12 dB

Fast SAR: SAR(1 g) = 2.41 W/kg; SAR(10 g) = 1.61 W/kg

Maximum value of SAR (interpolated) = 3.16 W/kg

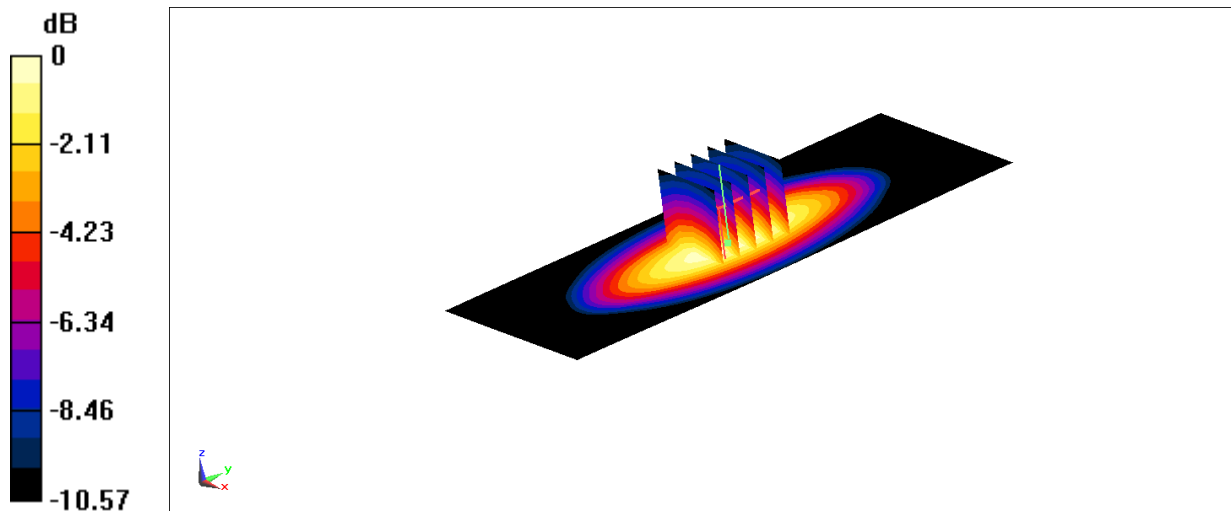
Zoom Scan (5x5x7)/Cube 0: Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 53.08 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 3.67 W/kg

SAR(1 g) = 2.36 W/kg; SAR(10 g) = 1.56 W/kg

Maximum value of SAR (measured) = 3.20 W/kg



$$0 \text{ dB} = 3.20 \text{ W/kg} = 5.05 \text{ dBW/kg}$$

**Fig.B.4 validation 835 MHz 250mW**

## 1750 MHz

Date: 1/15/2022

Electronics: DAE4 Sn1525

Medium: h1750

Medium parameters used:  $f = 1750$  MHz;  $\sigma = 1.38$  S/m;  $\epsilon_r = 42.701$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 1750 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(8.22, 8.22, 8.22)

Area Scan (51x101x1): Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm

Reference Value = 74.15 V/m; Power Drift = 0.14 dB

Fast SAR: SAR(1 g) = 9.69 W/kg; SAR(10 g) = 5.04 W/kg

Maximum value of SAR (interpolated) = 15.1 W/kg

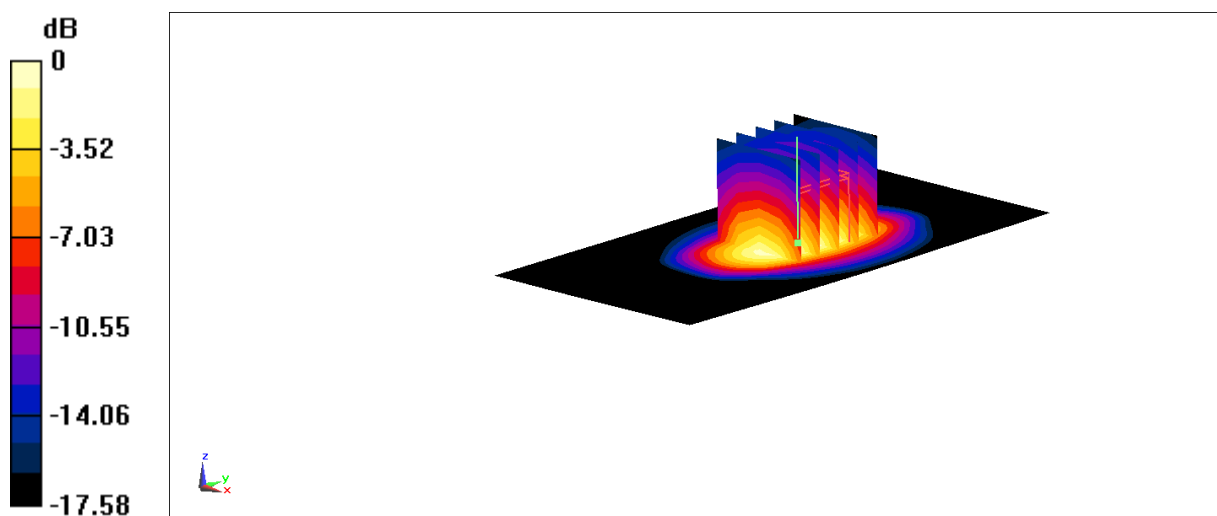
Zoom Scan (5x5x7)/Cube 0: Measurement grid:  $dx=8$ mm,  $dy=8$ mm,  $dz=5$ mm

Reference Value = 74.15 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 17.5 W/kg

SAR(1 g) = 9.45 W/kg; SAR(10 g) = 5.02 W/kg

Maximum value of SAR (measured) = 13.9 W/kg



0 dB = 13.9 W/kg = 11.43 dBW/kg

**Fig.B.5 validation 1750 MHz 250mW**

## 1900 MHz

Date: 1/18/2022

Electronics: DAE4 Sn1525

Medium: h1900

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.463$  S/m;  $\epsilon_r = 42.465$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.30C Liquid Temperature: 22.50C

Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(7.81, 7.81, 7.81)

Area Scan (51x101x1): Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm

Reference Value = 81.07 V/m; Power Drift = 0.15 dB

Fast SAR: SAR(1 g) = 10.2 W/kg; SAR(10 g) = 5.31 W/kg

Maximum value of SAR (interpolated) = 16.0 W/kg

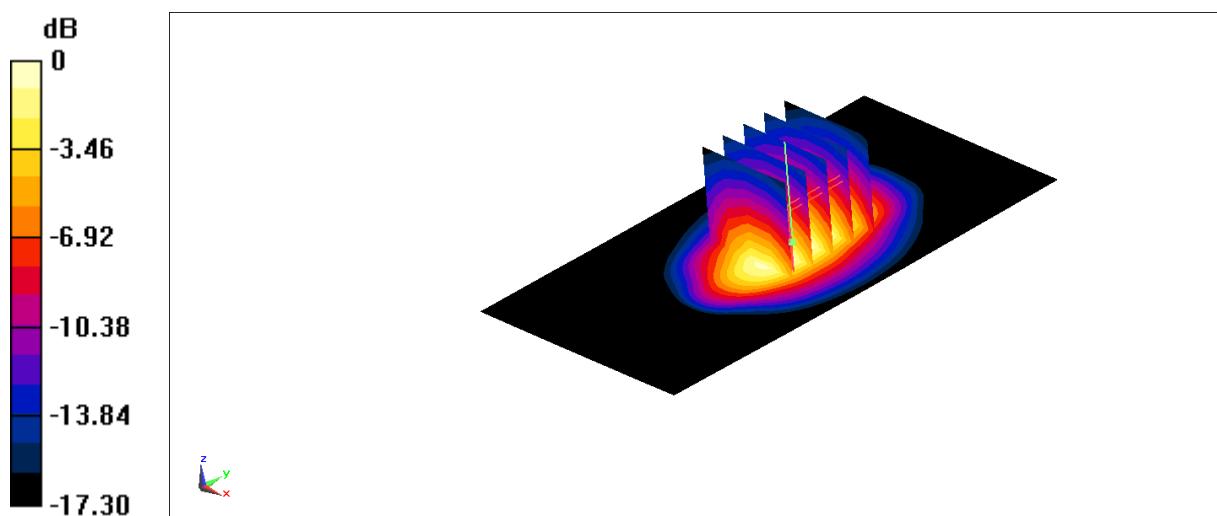
Zoom Scan (5x5x7)/Cube 0: Measurement grid:  $dx=8$ mm,  $dy=8$ mm,  $dz=5$ mm

Reference Value = 81.07 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 18.5 W/kg

SAR(1 g) = 10 W/kg; SAR(10 g) = 5.32 W/kg

Maximum value of SAR (measured) = 14.9 W/kg



$$0 \text{ dB} = 14.9 \text{ W/kg} = 11.73 \text{ dBW/kg}$$

**Fig.B.6 validation 1900 MHz 250mW**

## 2450 MHz

Date: 1/20/2022

Electronics: DAE4 Sn549

Medium: h2450

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.895$  S/m;  $\epsilon_r = 40.989$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.30C Liquid Temperature: 22.50C

Communication System: CW Frequency: 2450 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7600 ConvF(7.82, 7.82, 7.82)

Area Scan (61x121x1): Interpolated grid:  $dx=1.200$  mm,  $dy=1.200$  mm

Reference Value = 102.1 V/m; Power Drift = 0.15 dB

Fast SAR: SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.28 W/kg

Maximum value of SAR (interpolated) = 23.2 W/kg

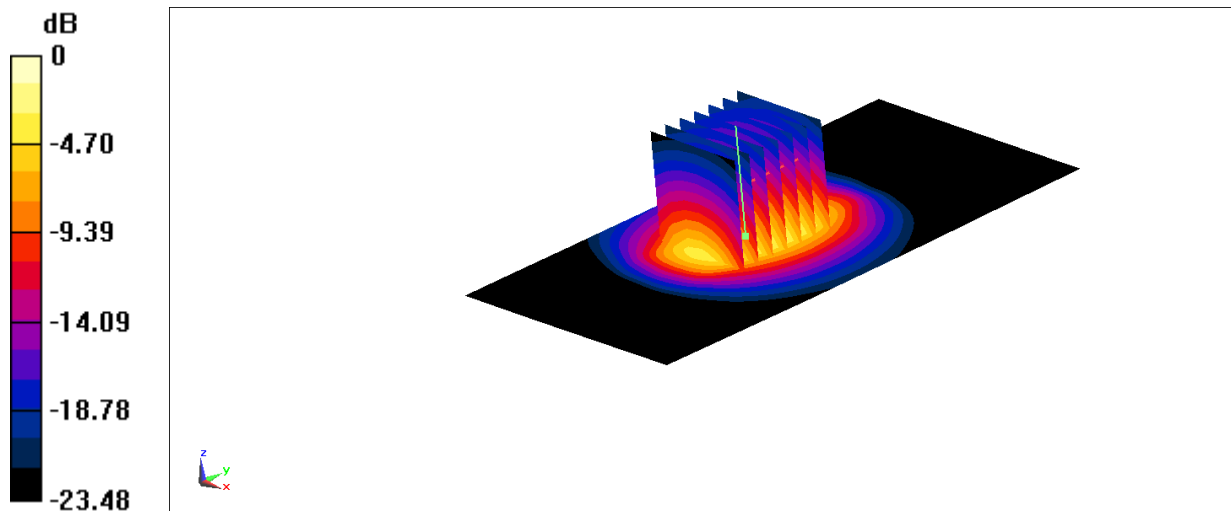
Zoom Scan (7x7x7)/Cube 0: Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 102.1 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 28.2 W/kg

SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.11 W/kg

Maximum value of SAR (measured) = 22.5 W/kg



0 dB = 22.5 W/kg = 13.52 dBW/kg

**Fig.B.7 validation 2450 MHz 250mW**

## 2600 MHz

Date: 1/13/2022

Electronics: DAE4 Sn1525

Medium: h2600

Medium parameters used:  $f = 2600$  MHz;  $\sigma = 2.057$  S/m;  $\epsilon_r = 40.998$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.30C Liquid Temperature: 22.50C

Communication System: CW Frequency: 2600 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7517 ConvF(7.1, 7.1, 7.1)

Area Scan 3 (61x81x1): Interpolated grid:  $dx=1.200$  mm,  $dy=1.200$  mm

Reference Value = 106.2 V/m; Power Drift = 0.11 dB

Fast SAR: SAR(1 g) = 14.4 W/kg; SAR(10 g) = 6.29 W/kg

Maximum value of SAR (interpolated) = 24.9 W/kg

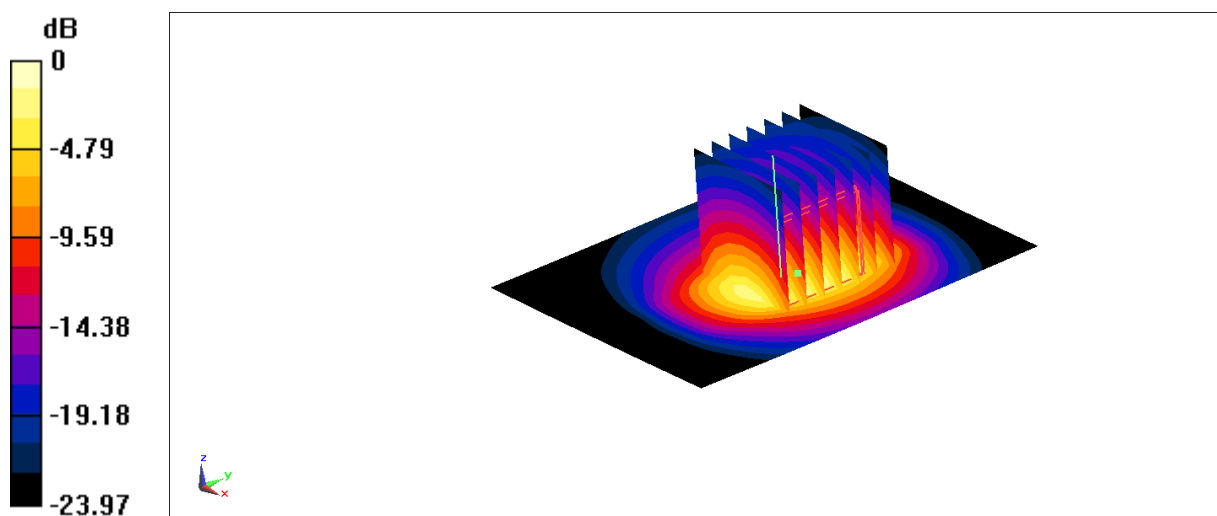
Zoom Scan (7x7x7)/Cube 0: Measurement grid:  $dx=5$ mm,  $dy=5$ mm,  $dz=5$ mm

Reference Value = 106.2 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 31.0 W/kg

SAR(1 g) = 14 W/kg; SAR(10 g) = 6.22 W/kg

Maximum value of SAR (measured) = 23.5 W/kg



0 dB = 23.5 W/kg = 13.71 dBW/kg

**Fig.B.8 validation 2600 MHz 250mW**

The SAR system verification must be required that the area scan estimated 1-g SAR is within 3% of the zoom scan 1-g SAR.

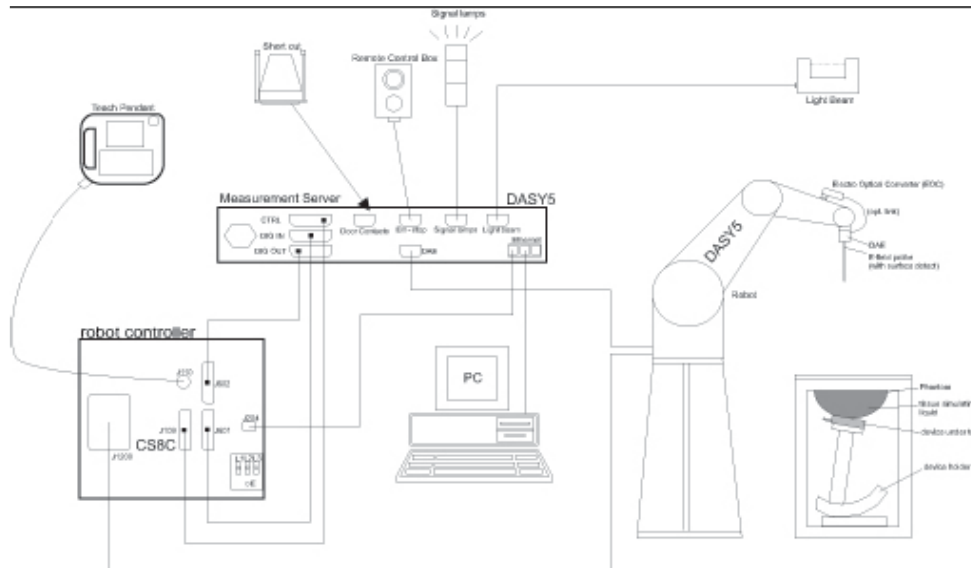
**Table B.1 Comparison between area scan and zoom scan for system verification**

| Date      | Band     | Position | Area scan (1g) | Zoom scan (1g) | Drift (%) |
|-----------|----------|----------|----------------|----------------|-----------|
| 2022/1/7  | 750 MHz  | Head     | 2.09           | 2.03           | 2.96      |
| 2022/1/16 | 750 MHz  | Head     | 2.24           | 2.18           | 2.75      |
| 2022/1/14 | 835 MHz  | Head     | 2.55           | 2.51           | 1.59      |
| 2022/1/20 | 835 MHz  | Head     | 2.41           | 2.36           | 2.12      |
| 2022/1/15 | 1750 MHz | Head     | 9.69           | 9.45           | 2.54      |
| 2022/1/18 | 1900 MHz | Head     | 10.2           | 10             | 2.00      |
| 2022/1/22 | 2450 MHz | Head     | 13.8           | 13.4           | 2.99      |
| 2022/1/13 | 2600 MHz | Head     | 14.4           | 14             | 2.86      |

## ANNEX C SAR Measurement Setup

### C.1 Measurement Set-up

The Dasy5 or DASY6 system for performing compliance tests is illustrated above graphically. This system consists of the following items:



**Picture C.1 SAR Lab Test Measurement Set-up**

- A standard high precision 6-axis robot (Stäubli TX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP and the DASY5 or DASY6 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

## C.2 Dasy5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multifiber line ending at the front of the probe tip. It is connected to the EOC box on the robot arm and provides an automatic detection of the phantom surface. Half of the fibers are connected to a pulsed infrared transmitter, the other half to a synchronized receiver. As the probe approaches the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches maximum and then decreases. If the probe is flatly touching the surface, the coupling is zero. The distance of the coupling maximum to the surface is independent of the surface reflectivity and largely independent of the surface to probe angle. The DASY5 or DASY6 software reads the reflection during a software approach and looks for the maximum using 2<sup>nd</sup> order curve fitting. The approach is stopped at reaching the maximum.

### Probe Specifications:

|                       |                                                                                                            |
|-----------------------|------------------------------------------------------------------------------------------------------------|
| <b>Model:</b>         | <b>ES3DV3, EX3DV4</b>                                                                                      |
| <b>Frequency</b>      | <b>10MHz — 6.0GHz(EX3DV4)</b>                                                                              |
| <b>Range:</b>         | <b>10MHz — 4GHz(ES3DV3)</b>                                                                                |
| <b>Calibration:</b>   | <b>In head and body simulating tissue at<br/>Frequencies from 835 up to 5800MHz</b>                        |
| <b>Linearity:</b>     | <b>± 0.2 dB(30 MHz to 6 GHz) for EX3DV4<br/>± 0.2 dB(30 MHz to 4 GHz) for ES3DV3</b>                       |
| <b>DynamicRange:</b>  | <b>10 mW/kg — 100W/kg</b>                                                                                  |
| <b>Probe Length:</b>  | <b>330 mm</b>                                                                                              |
| <b>Probe Tip</b>      |                                                                                                            |
| <b>Length:</b>        | <b>20 mm</b>                                                                                               |
| <b>Body Diameter:</b> | <b>12 mm</b>                                                                                               |
| <b>Tip Diameter:</b>  | <b>2.5 mm (3.9 mm for ES3DV3)</b>                                                                          |
| <b>Tip-Center:</b>    | <b>1 mm (2.0mm for ES3DV3)</b>                                                                             |
| <b>Application:</b>   | <b>SAR Dosimetry Testing<br/>Compliance tests of mobile phones<br/>Dosimetry in strong gradient fields</b> |



Picture C.2Near-field Probe



Picture C.3E-field Probe

## C.3 E-field Probe Calibration

Each E-Probe/Probe Amplifier combination has unique calibration parameters. A TEM cell calibration procedure is conducted to determine the proper amplifier settings to enter in the probe parameters. The amplifier settings are determined for a given frequency by subjecting the probe to a known E-field density (1 mW/cm<sup>2</sup>) using an RF Signal generator, TEM cell, and RF Power Meter.

The free space E-field from amplified probe outputs is determined in a test chamber. This calibration can be performed in a TEM cell if the frequency is below 1 GHz and in a waveguide or

other methodologies above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees until the three channels show the maximum reading. The power density readings equates to 1 mW/cm<sup>2</sup>.

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The E-field in the medium correlates with the temperature rise in the dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$SAR = C \frac{\Delta T}{\Delta t}$$

Where:

$\Delta t$  = Exposure time (30 seconds),

C = Heat capacity of tissue (brain or muscle),

$\Delta T$  = Temperature increase due to RF exposure.

$$SAR = \frac{|E|^2 \cdot \sigma}{\rho}$$

Where:

$\sigma$  = Simulated tissue conductivity,

$\rho$  = Tissue density (kg/m<sup>3</sup>).

## C.4 Other Test Equipment

### C.4.1 Data Acquisition Electronics(DAE)

The data acquisition electronics consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock.

The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.



**PictureC.4: DAE**

### C.4.2 Robot

The SPEAG DASY system uses the high precision robots (DASY5: RX160L) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability 0.02mm)
- High reliability (industrial design)
- Low maintenance costs (virtually maintenance free due to direct drive gears; no belt drives)
- Jerk-free straight movements (brushless synchron motors; no stepper motors)
- Low ELF interference (motor control fields shielded via the closed metallic construction shields)



Picture C.5 DASY 5

### C.4.3 Measurement Server

The Measurement server is based on a PC/104 CPU board with CPU (DASY5: 400 MHz, Intel Celeron), chipdisk (DASY5: 128MB), RAM DASY5: 128MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY I/O board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all real-time data evaluation of field measurements and surface detection, controls robot movements and handles safety operation. The PC operating system cannot interfere with these time critical processes. All connections are supervised by a watchdog, and disconnection of any of the cables to the measurement server will automatically disarm the robot and disable all program-controlled robot movements. Furthermore, the measurement server is equipped with an expansion port which is reserved for future applications. Please note that this expansion port does not have a standardized pinout, and therefore only devices provided by SPEAG can be connected. Devices from any other supplier could seriously damage the measurement server.



Picture C.6 Server for DASY 5

#### C.4.4 Device Holder for Phantom

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5mm distance, a positioning uncertainty of  $\pm 0.5\text{mm}$  would produce a SAR uncertainty of  $\pm 20\%$ . Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

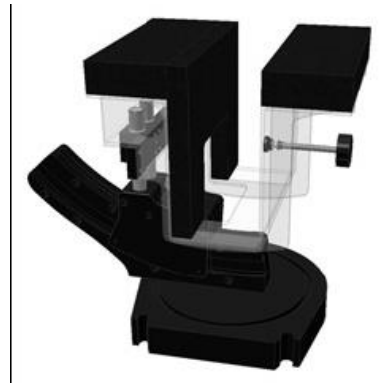
The DASY device holder is designed to cope with the different positions given in the standard. It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles. The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity  $\epsilon = 3$  and loss tangent  $\delta = 0.02$ . The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

<Laptop Extension Kit>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the Mounting Device in place of the phone positioner. The extension is fully compatible with the Twin-SAM and ELI phantoms.



**Picture C7-1: Device Holder**



**Picture C.7-2: Laptop Extension Kit**

#### C.4.5 Phantom

The SAM Twin Phantom V4.0 is constructed of a fiberglass shell integrated in a table. The shape of the shell is based on data from an anatomical study designed to Represent the 90<sup>th</sup> percentile of the population. The phantom enables the dissymmetric evaluation of SAR for both left and right handed handset usage, as well as body-worn usage using the flat phantom region. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot. The shell phantom has a 2mm shell thickness (except the ear region where shell thickness increases to 6 mm).

Shell Thickness:  $2 \pm 0.2 \text{ mm}$

Filling Volume: Approx. 25 liters

Dimensions: 810 x 1000 x 500 mm (H x L x W)

Available: Special

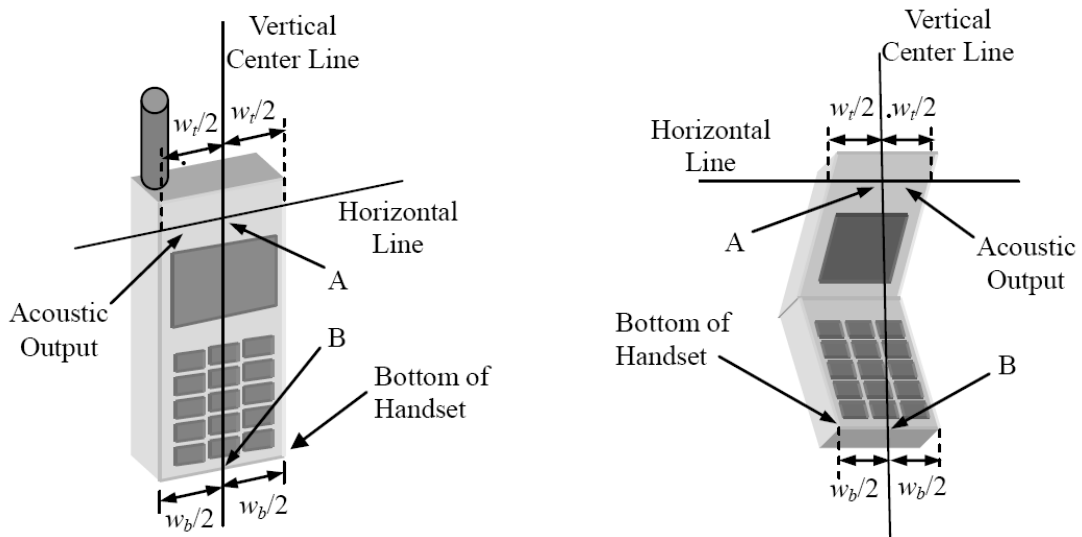


**Picture C.8: SAM Twin Phantom**

## ANNEX D Position of the wireless device in relation to the phantom

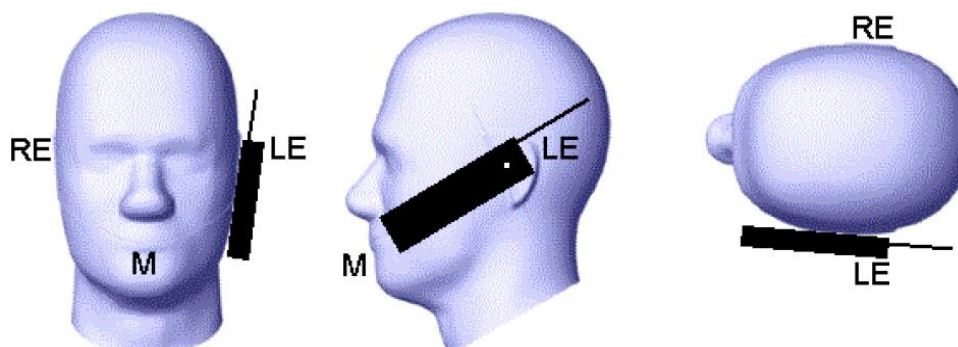
### D.1 General considerations

This standard specifies two handset test positions against the head phantom – the “cheek” position and the “tilt” position.

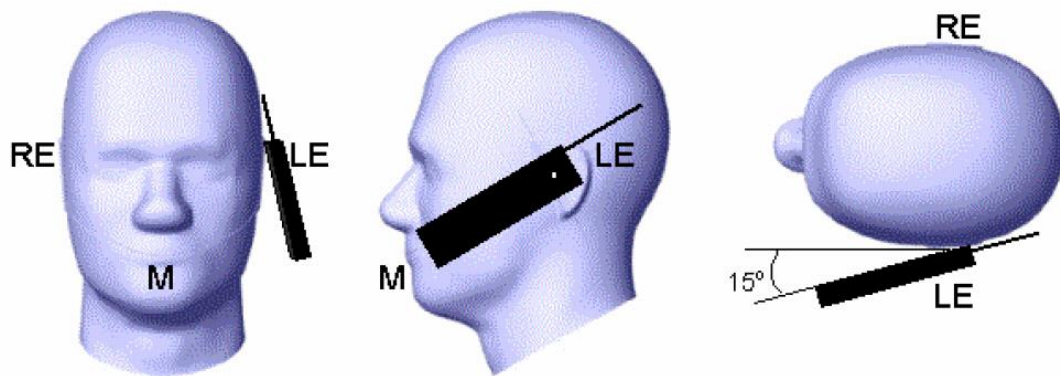


|       |                                                                                |
|-------|--------------------------------------------------------------------------------|
| $w_t$ | Width of the handset at the level of the acoustic                              |
| $w_b$ | Width of the bottom of the handset                                             |
| A     | Midpoint of the width $w_t$ of the handset at the level of the acoustic output |
| B     | Midpoint of the width $w_b$ of the bottom of the handset                       |

Picture D.1-a Typical “fixed” case handset      Picture D.1-b Typical “clam-shell” case handset



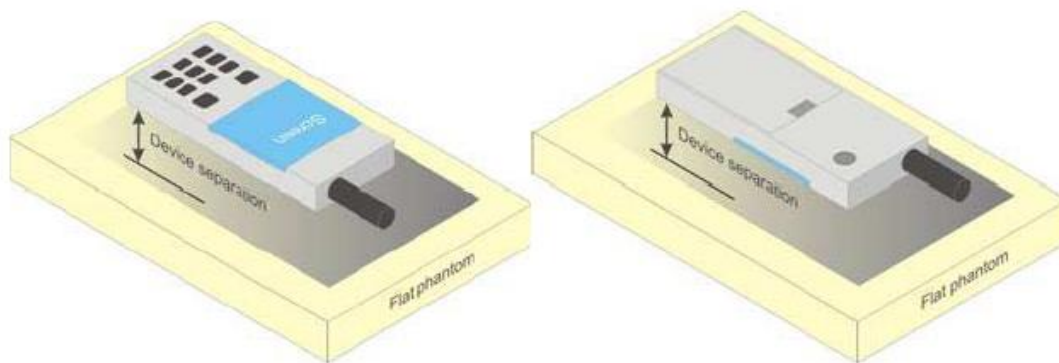
Picture D.2 Cheek position of the wireless device on the left side of SAM



**Picture D.3 Tilt position of the wireless device on the left side of SAM**

## D.2 Body-worn device

A typical example of a body-worn device is a mobile phone, wireless enabled PDA or other battery operated wireless device with the ability to transmit while mounted on a person's body using a carry accessory approved by the wireless device manufacturer.

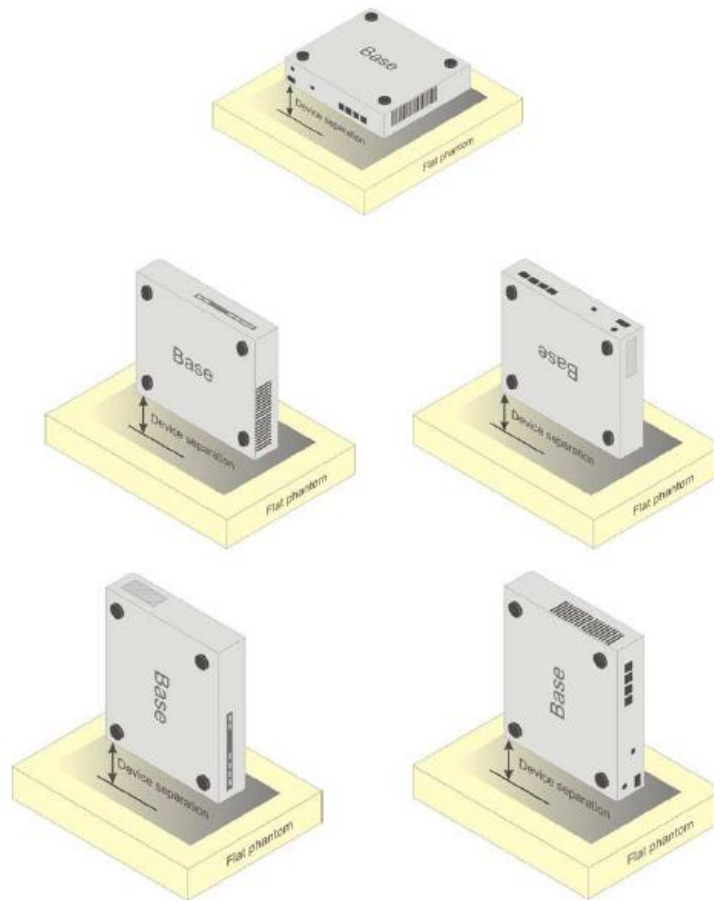


**Picture D.4 Test positions for body-worn devices**

## D.3 Desktop device

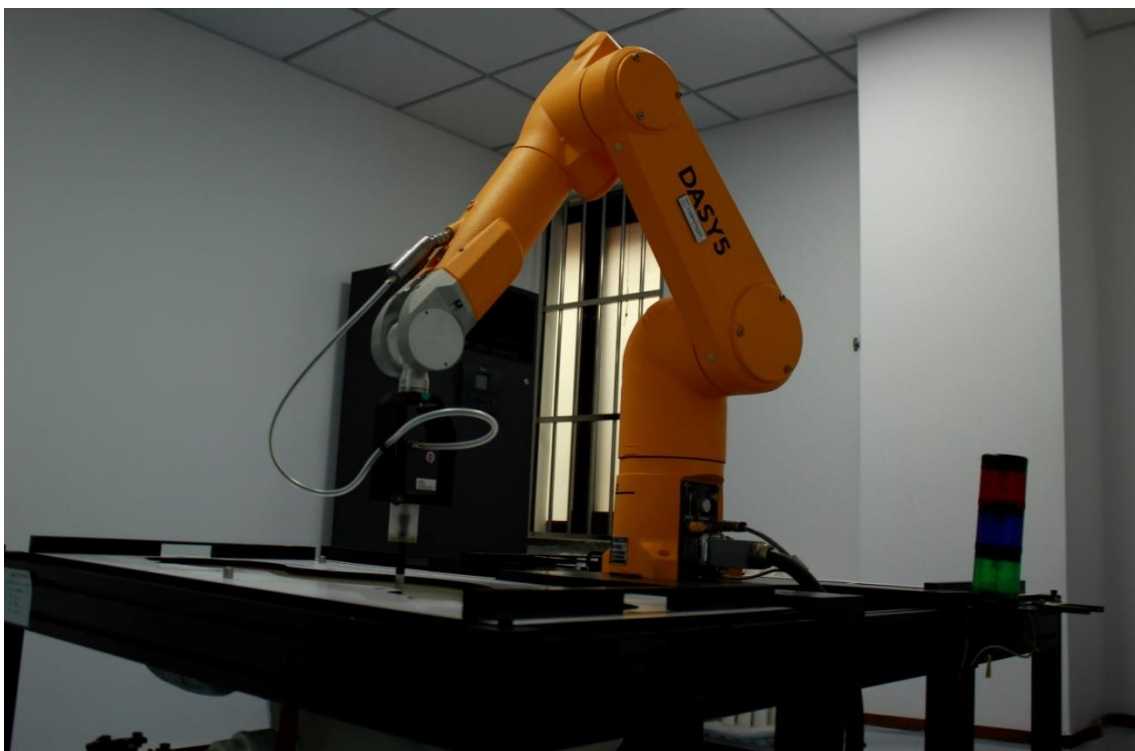
A typical example of a desktop device is a wireless enabled desktop computer placed on a table or desk when used.

The DUT shall be positioned at the distance and in the orientation to the phantom that corresponds to the intended use as specified by the manufacturer in the user instructions. For devices that employ an external antenna with variable positions, tests shall be performed for all antenna positions specified. Picture 8.5 show positions for desktop device SAR tests. If the intended use is not specified, the device shall be tested directly against the flat phantom.



Picture D.5 Test positions for desktop devices

### D.3 DUT Setup Photos



Picture D.6

## ANNEX E Equivalent Media Recipes

The liquid used for the frequency range of 800-3000 MHz consisted of water, sugar, salt, preventol, glycol monobutyl and Cellulose. The liquid has been previously proven to be suited for worst-case. The Table E.1 shows the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the IEEE 1528 and IEC 62209.

**TableE.1: Composition of the Tissue Equivalent Matter**

| Frequency (MHz)                    | 835Head                          | 835Body                          | 1900 Head                        | 1900 Body                        | 2450 Head                        | 2450 Body                        | 5800 Head                        | 5800 Body                        |
|------------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Ingredients (% by weight)          |                                  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| Water                              | 41.45                            | 52.5                             | 55.242                           | 69.91                            | 58.79                            | 72.60                            | 65.53                            | 65.53                            |
| Sugar                              | 56.0                             | 45.0                             | \                                | \                                | \                                | \                                | \                                | \                                |
| Salt                               | 1.45                             | 1.4                              | 0.306                            | 0.13                             | 0.06                             | 0.18                             | \                                | \                                |
| Preventol                          | 0.1                              | 0.1                              | \                                | \                                | \                                | \                                | \                                | \                                |
| Cellulose                          | 1.0                              | 1.0                              | \                                | \                                | \                                | \                                | \                                | \                                |
| Glycol Monobutyl                   | \                                | \                                | 44.452                           | 29.96                            | 41.15                            | 27.22                            | \                                | \                                |
| Diethyleneglycol monohexylether    | \                                | \                                | \                                | \                                | \                                | \                                | 17.24                            | 17.24                            |
| Triton X-100                       | \                                | \                                | \                                | \                                | \                                | \                                | 17.24                            | 17.24                            |
| Dielectric Parameters Target Value | $\epsilon=41.5$<br>$\sigma=0.90$ | $\epsilon=55.2$<br>$\sigma=0.97$ | $\epsilon=40.0$<br>$\sigma=1.40$ | $\epsilon=53.3$<br>$\sigma=1.52$ | $\epsilon=39.2$<br>$\sigma=1.80$ | $\epsilon=52.7$<br>$\sigma=1.95$ | $\epsilon=35.3$<br>$\sigma=5.27$ | $\epsilon=48.2$<br>$\sigma=6.00$ |

**Note: There are a little adjustment respectively for 750, 1750, 2600, 5200, 5300 and 5600 based on the recipe of closest frequency in table E.1.**

## ANNEX F System Validation

The SAR system must be validated against its performance specifications before it is deployed. When SAR probes, system components or software are changed, upgraded or recalibrated, these must be validated with the SAR system(s) that operates with such components.

**Table F.2: System Validation for 7517**

| Probe SN. | Liquid name  | Validation date   | Frequency point | Status (OK or Not) |
|-----------|--------------|-------------------|-----------------|--------------------|
| 7517      | Head 750MHz  | February 19, 2021 | 750 MHz         | OK                 |
| 7517      | Head 900MHz  | February 19, 2021 | 900 MHz         | OK                 |
| 7517      | Head 1450MHz | February 20, 2021 | 1450 MHz        | OK                 |
| 7517      | Head 1640MHz | February 20, 2021 | 1640 MHz        | OK                 |
| 7517      | Head 1750MHz | February 21, 2021 | 1750 MHz        | OK                 |
| 7517      | Head 1900MHz | February 21, 2021 | 1900 MHz        | OK                 |
| 7517      | Head 2000MHz | February 22, 2021 | 2000 MHz        | OK                 |
| 7517      | Head 2300MHz | February 22, 2021 | 2300 MHz        | OK                 |
| 7517      | Head 2450MHz | February 22, 2021 | 2450 MHz        | OK                 |
| 7517      | Head 2600MHz | February 23, 2021 | 2600 MHz        | OK                 |
| 7517      | Head 3300MHz | February 23, 2021 | 3300 MHz        | OK                 |
| 7517      | Head 3500MHz | February 23, 2021 | 3500 MHz        | OK                 |
| 7517      | Head 3700MHz | February 24, 2021 | 3700 MHz        | OK                 |
| 7517      | Head 3900MHz | February 24, 2021 | 3900 MHz        | OK                 |
| 7517      | Head 4100MHz | February 25, 2021 | 4100MHz         | OK                 |
| 7517      | Head 4200MHz | February 25, 2021 | 4200MHz         | OK                 |
| 7517      | Head 4400MHz | February 25, 2021 | 4400MHz         | OK                 |
| 7517      | Head 4600MHz | February 26, 2021 | 4600MHz         | OK                 |
| 7517      | Head 4800MHz | February 26, 2021 | 4800MHz         | OK                 |
| 7517      | Head 4950MHz | February 26, 2021 | 4950MHz         | OK                 |
| 7517      | Head 5250MHz | February 27, 2021 | 5250MHz         | OK                 |
| 7517      | Head 5600MHz | February 27, 2021 | 5600 MHz        | OK                 |
| 7517      | Head 5750MHz | February 27, 2021 | 5750 MHz        | OK                 |

**Table F.1: System Validation for 7600**

| Probe SN. | Liquid name  | Validation date | Frequency point | Status (OK or Not) |
|-----------|--------------|-----------------|-----------------|--------------------|
| 7600      | Head 750MHz  | January 2, 2022 | 750 MHz         | OK                 |
| 7600      | Head 900MHz  | January 2, 2022 | 900 MHz         | OK                 |
| 7600      | Head 1450MHz | January 3, 2022 | 1450 MHz        | OK                 |
| 7600      | Head 1750MHz | January 3, 2022 | 1750 MHz        | OK                 |
| 7600      | Head 1900MHz | January 4, 2022 | 1900 MHz        | OK                 |
| 7600      | Head 2100MHz | January 4, 2022 | 2000 MHz        | OK                 |
| 7600      | Head 2300MHz | January 4, 2022 | 2300 MHz        | OK                 |
| 7600      | Head 2450MHz | January 5, 2022 | 2450 MHz        | OK                 |
| 7600      | Head 2600MHz | January 5, 2022 | 2600 MHz        | OK                 |
| 7600      | Head 3300MHz | January 6, 2022 | 3300 MHz        | OK                 |
| 7600      | Head 3500MHz | January 6, 2022 | 3500 MHz        | OK                 |
| 7600      | Head 3700MHz | January 6, 2022 | 3700 MHz        | OK                 |
| 7600      | Head 3900MHz | January 7, 2022 | 3900 MHz        | OK                 |
| 7600      | Head 4100MHz | January 7, 2022 | 4100MHz         | OK                 |
| 7600      | Head 4200MHz | January 7, 2022 | 4200MHz         | OK                 |
| 7600      | Head 4400MHz | January 8, 2022 | 4400MHz         | OK                 |
| 7600      | Head 4600MHz | January 8, 2022 | 4600MHz         | OK                 |
| 7600      | Head 4800MHz | January 8, 2022 | 4800MHz         | OK                 |
| 7600      | Head 4950MHz | January 9, 2022 | 4950MHz         | OK                 |
| 7600      | Head 5250MHz | January 9, 2022 | 5250MHz         | OK                 |
| 7600      | Head 5600MHz | January 9, 2022 | 5600 MHz        | OK                 |
| 7600      | Head 5750MHz | January 9, 2022 | 5750 MHz        | OK                 |



## ANNEX G Probe Calibration Certificate

## Probe 7517 Calibration Certificate

In Collaboration with  
**s p e a g**  
CALIBRATION LABORATORY中国认可  
国际互认  
校准  
CALIBRATION  
CNAS L0570Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China  
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504  
E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

Client

CTTL

Certificate No: Z21-60001

## CALIBRATION CERTIFICATE

Object

EX3DV4 - SN : 7517

Calibration Procedure(s)

FF-Z11-004-02

Calibration Procedures for Dosimetric E-field Probes

Calibration date:

February 03, 2021

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)°C and humidity<70%.

Calibration Equipment used (M&amp;TE critical for calibration)

| Primary Standards        | ID #        | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
|--------------------------|-------------|------------------------------------------|-----------------------|
| Power Meter NRP2         | 101919      | 16-Jun-20(CTTL, No.J20X04344)            | Jun-21                |
| Power sensor NRP-Z91     | 101547      | 16-Jun-20(CTTL, No.J20X04344)            | Jun-21                |
| Power sensor NRP-Z91     | 101548      | 16-Jun-20(CTTL, No.J20X04344)            | Jun-21                |
| Reference 10dBAttenuator | 18N50W-10dB | 10-Feb-20(CTTL, No.J20X00525)            | Feb-22                |
| Reference 20dBAttenuator | 18N50W-20dB | 10-Feb-20(CTTL, No.J20X00526)            | Feb-22                |
| Reference Probe EX3DV4   | SN 7307     | 29-May-20(SPEAG, No.EX3-7307_May20)      | May-21                |
| DAE4                     | SN 1556     | 4-Feb-20(SPEAG, No.DAE4-1556_Feb20)      | Feb-21                |
| DAE4                     | SN 1555     | 25-Aug-20(SPEAG, No.DAE4-1555_Aug20)     | Aug-21                |
| Secondary Standards      | ID #        | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
| SignalGenerator MG3700A  | 6201052605  | 23-Jun-20(CTTL, No.J20X04343)            | Jun-21                |
| Network Analyzer E5071C  | MY46110673  | 10-Feb-20(CTTL, No.J20X00515)            | Feb-21                |

|                | Name        | Function           | Signature |
|----------------|-------------|--------------------|-----------|
| Calibrated by: | Yu Zongying | SAR Test Engineer  |           |
| Reviewed by:   | Lin Hao     | SAR Test Engineer  |           |
| Approved by:   | Qi Dianyuan | SAR Project Leader |           |

Issued: February 05, 2021

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: Z21-60001

Page 1 of 9